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By Ayca Coskunpinar

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The Creation and Validation of the Activation-Valence Affective Traits Survey (AVATS)

For the degree of Master of Science

Is approved by the final examining committee:

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THE CREATION AND VALIDATION OF THE ACTIVATION-VALENCE AFFECTIVE TRAITS SURVEY (AVATS)

A Thesis
Submitted to the Faculty
of
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by
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of
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ABSTRACT

Coskunpinar, Ayca. M.S., Purdue University, August 2011. The Creation and Validation of the Activation-Valence Affective Traits Survey (AVATS). Major Professor: Melissa A. Cyders.

Aim: The goals of the current studies were to (a) create a measure of affective traits that can assess both the discrete and the underlying dimensions of affective traits and (b) examine the reliability and validity of the scale in two independent samples. Participants: Participants were undergraduate students at a large, public US mid-western university (Study 1 $N = 616$; Study 2 $N = 510$). The mean age for Study 1 was 21.10 ($SD = 5.05$) and 21.02 for Study 2 ($SD = 4.96$). Design: Exploratory and confirmatory factor analyses were conducted to examine internal factor structure of the scale. A series of correlational, reliability, and hierarchical regression analyses were conducted to examine convergent, divergent, and criterion-related validity of the new scale. Findings: Activation-Valence Affective Traits Survey (AVATS) had good reliability and adequate construct, convergent, and discriminant validity as a measure of affective traits. Conclusions: This study introduces a new scale for measuring affective traits that offers more information on both the categorical and dimensional conceptualizations of affective traits, which also has predictive utility in relation to problem-related alcohol consumption.

INTRODUCTION

Research has shown that negative affective traits are associated with maladaptive behaviors, such as alcohol use (Larsen, 2000). Moreover, the relationship between negative urgency, known as the tendency to act rashly in response to a negative emotional state, and alcohol consumption has been repeatedly shown (Fischer & Smith, 2008; Miller, Flory, Lynam, & Leukefeld, 2003; Whiteside & Lynam, 2003). However, so far, research with affect and negative urgency has considered negative affective traits as a whole; moreover, there is contradictory research on the unique role of discrete negative affective traits, such as anxiety, sadness, and anger, in problematic alcohol consumption (Clark & Watson, 1991; Lerner & Keltner, 2000; Raghunathan & Pham, 1999). For instance, some researchers have found that only anxiety-related states, not sadness or other negative affect, predict increased alcohol consumption (Clark & Watson, 1991; Hiller, Zaudig, & Bose, 1989; Katon & Roy-Byrne, 1991). Additionally, research has yet to address how differing valence and activation levels might have differential predictive qualities for alcohol consumption. In addition to these limitations, currently there are no instruments to assess both the valence and activation of affective traits as well as the discrete affective traits together. Therefore, the aim of this paper is to create a measure that can assess the discrete affective traits, as well as the valence and activation of affective traits, and to examine how they interact with the personality construct of negative urgency to predict problematic alcohol consumption. I will do this through the development of a new affective traits measure, the Activation-Valence Affective Traits Survey (AVATS).

In order to address some of the limitations mentioned above, I will first review the literature on affective traits, including defining affective traits in terms of discrete emotional tendencies and activation-valence dimensions. Second, I will discuss the role

of negative affective traits in problem-related alcohol consumption. Third, I will review the existing personality literature pertaining to negative urgency and discuss how negative urgency relates to problematic alcohol consumption. Finally, I will describe the pair of studies: The aim of Study 1 is to create a content valid measure that will assess discrete labels, as well as valence and activation dimensions, of these traits. The aims of Study 2 are (a) to examine the construct validity of the AVATS created in Study 1 using confirmatory factor analysis; (b) to examine the convergent and discriminant validity of the AVATS with existing affective trait measures; and (c) to examine the criterion-related validity of the AVATS by exploring its ability to predict problem-related alcohol consumption.

Affective Traits

Rosenberg (1998) has proposed a hierarchical model of affective organization. According to Rosenberg, the affective realm has two categories: traits (affective traits) and states (moods and emotions). Affective traits are defined as stable tendencies that set the threshold for experiencing certain emotional states. For instance, people who are more hostile have a lower threshold for anger than people who are less hostile (Rosenberg, 1998). Moods and emotions, on the other hand, are transient states that fluctuate throughout the day. Moods last longer than emotions and influence consciousness. Emotions, unlike moods, are state dependent and lead an individual to respond to a situation in one's environment.

Affective traits can be conceptualized using two different models of affect: categorical and dimensional aspects. Categorical definitions of affective traits include using discrete emotion labels such as anger, sadness, or excitement. These categorical perspectives suggest that each emotion has a unique behavioral correlate (Ekman, 1999; Izard, 1972; Mauss & Robinson, 2009) and that a tendency to experience these emotions at a high frequency indicates a related discrete affective trait. For example, high incidences of anger may suggest a hostile or irritable trait (Ekman, 1984). There are well-established universal emotions based on years of research; these include the following:

amusement, anger, contempt, contentment, disgust, embarrassment, excitement, fear, guilt, pride in achievement, relief, sadness, distress, satisfaction, sensory pleasure, shame, interest, and joy (see Ekman, 1999; Izard, Libero, Putnam, & Hayes, 1993).

Affective traits can also be conceptualized in terms of their dimensional aspects, such as valence (displeasure-pleasure) and activation (activation-deactivation) (see Barrett & Russell, 1999; Larsen & Diener, 1992; Russell, 1980; Thayer, 1989; Watson & Tellegen, 1985). According to this two-dimensional model, valence refers to the hedonic tone and contrasts pleasure (e.g., happiness) with displeasure (e.g., sadness), whereas activation refers to a sense of energy, contrasting high activation (e.g, surprise) and low activation (e.g., serenity) (Mauss & Robinson, 2009).

As previously mentioned, the research on problem-related alcohol consumption and negative affective traits from either the categorical or the dimensional perspective is contradictory. Previous research has often used only one of these two approaches in demonstrating the relationship between affective traits and problematic alcohol consumption, which may be due to the resources available to assess affective traits. There are several existing self-report questionnaires to assess affective traits; however, most of these questionnaires are limited in identifying the valence and activation of affect at the same time. Additionally, many of the questionnaires do not appear to fully sample the proposed existing discrete affective traits (see Ekman, 1999; Izard, 1972).

The contradictory information on the relationship between negative affective traits and problem-related alcohol consumption may be due to several things, one of which may be the measurement of affective traits. As previously mentioned, current affective trait questionnaires do not provide information on both the valence and activation of discrete affective traits. The aim of this paper is to create a new measure of affect, in the light of the existing scales, which will assess both the discrete affective traits as well as the valence and activation dimensions of these affective traits. In order to do this, I examined the factor structure of affective trait items from five self-report measures of affect, which led to the creation of AVATS with subscales representing the valence and activation of discrete affective traits, and then I tested the construct validity and reliability of the AVATS. Combining the two approaches of affective traits may

provide more accurate information on the domain of affective traits, which in turn may be useful in assessing the predictive value that negative affective traits offer in consumption of problem related alcohol consumption.

The Role of Negative Affective Traits in Alcohol Consumption

Several studies indicate that there is an association between negative affective traits and alcohol consumption (Colder, 2001; Cooper, Frone, Russell, & Mudar, 1995; Wills, Vaccaro, & McNamara, 1999). General negative affect is an indirect predictor of problems related to alcohol use in adult populations (Khantzian, 1985; 1997) and a significant predictor of problematic alcohol consumption in college populations (Martens et al., 2008; Park & Grant, 2005; Simons, Gaher, Correia, Hansen, & Christopher, 2005). Although research adequately supports the general role of negative affective traits in alcohol consumption, conflicting views remain on which discrete negative affective traits are related to problematic alcohol consumption.

The Role of Discrete Negative Affective Traits in Alcohol Consumption

The relationship between discrete negative affective traits and how they relate to alcohol consumption is mixed. Some information concerning the role of discrete emotions is pertinent here. Individuals consume more alcohol on days when they feel anxious and stressed (Tice & Bratslavsky, 2000), more so for men as compared to women (Swendsen et al., 2000). Additional indications also include findings that alcohol may be used as a self-medication for dealing with symptoms of anxiety and depression (Khantzian, 1997; Swendsen, et al., 2000) and alcohol reduces anxiety (Kushner et al., 1996).

In addition to the role of discrete emotions in problematic alcohol consumption, research has also demonstrated a link between discrete negative affective traits and problem-related alcohol consumption. Research indicates that hostility is a predictor of

risky alcohol consumption in both men and women and it increases the risk of problematic drinking (Nesic & Duka, 2008; Whiteman, Fowkes, Deary, & Lee, 1997). Other studies found that only anxiety-related affective traits, not sadness or other negative affect, predict increased alcohol consumption that is problematic (Clark & Watson, 1991; Hiller, Zaudig, & Bose, 1989; Katon & Roy-Byrne, 1991; Sinha et al., 2009). Research has also demonstrated that individuals who are higher on neuroticism, a personality trait that makes individuals more susceptible to experiencing affective traits such as anxiety and depression (Matthews, Deary, & Whiteman, 2003), also have a greater risk for problematic alcohol consumption (Read & O'Connor, 2005).

As evident from the mixed results of previous studies, researchers have not yet determined if certain discrete negative affective traits might affect problem-related alcohol consumption more than others.

The Role of Valence and Activation of Affective Traits and Alcohol Consumption

Research has also studied the relationship between the dimensional perspective of emotions and risk-taking behavior. Emotions that have positive valence have been associated with risk-averse behavior (Isen, Nygren, & Ashby, 1988; Isen & Patrick, 1983). Substance and alcohol abusers, who engage in problematic drinking, rate images with unpleasant content as more unpleasant, compared with individuals who are not substance/alcohol abusers. This shows some indication that there is a difference in the evaluation of emotion valence (Aguilar de Arcos, Verdejo-Garcia, Peralta-Ramirez, Sanchez-Barrera, & Perez-Garcia, 2005), although it is unclear whether or not this tendency exists premorbid to the initiation of substance use.

Research seems to demonstrate the relationship between the valence of emotions and risky behavior; however, limited research is available on the association between the activation of emotions and risk-taking behavior. According to Wegener and Petty (1994), people who are experiencing negative affect seem to neglect the consequences of their actions, which in turn leads to self-defeating patterns of behavior (Baumeister & Scher,

1988). Leith and Baumeister (1996) demonstrated that activation leads to higher risk-taking behavior, measured by the participants' self-reports, regardless of the valence of the emotion people are experience. It may be the case that the experience of extreme emotions (high activated emotions), may signal for actions more than the experience of emotions that are not as intense (Cyders & Smith, 2008). For example, Muraven and Baumeister (2000) and Tice and Bratslavsky (2000) have shown that intense emotions lead to more emotion-focused attention, which is more likely to lead to engagement in risky behaviors. The theory of affect regulation suggests that people give priority to affect regulation when they are emotionally upset to decrease the negative emotions that they are experiencing, which can be achieved through several activities such as extra sleep, drugs, high-calorie foods and also alcohol (Tice et al., 2001). Moreover, Aguilar de Arcos and colleagues (2005) demonstrated that problem-related alcohol users display greater activation when they are presented with arousing erotic images, as compared to heroin and cocaine users.

Based on previous research, although it is well-established that negative affective traits predict problematic alcohol consumption, there is little consensus on the mechanism that drives this relationship: is it the underlying valence, underlying activation, or the discrete affective trait that predicts problematic drinking? Additionally, it is likely that these aspects of affective traits might interact with personality to produce increased risk. Next, I will summarize the literature concerning negative urgency and its role in problematic alcohol consumption and integrate this construct with negative affective traits.

Negative Urgency and its Role in Alcohol Consumption

Negative urgency is a personality trait that is related to a disposition toward rash action (see Cyders & Smith, 2007). It is more specifically defined as the tendency toward rash action in response to extreme negative affect, and can be thought of as the inability to manage negative affect, which in turn leads to engagement in risky behaviors to reduce these negative affects (Anestis, Selby, & Joiner, 2007). Negative urgency is a predictor of

problematic alcohol consumption, alcohol abuse, and increased alcohol consumption during the first year of college (Cyders, Flory, Rainer, & Smith, 2009; Evenden, 1999; Fischer & Smith, 2008). Negative urgency predicts problems related to addiction (measured by the addiction severity index) and is perhaps the best predictor of problem-related alcohol consumption (Verdejo-Garcia, Bechara, Recknor, & Perez-Garcia, 2007). Furthermore, negative urgency moderates the relationship between negative affective traits and alcohol consumption and is able to add significant predictive variance in alcohol consumption even when the intensity of affective traits is controlled (Cyders & Coskunpinar, 2010). To summarize, the important role of negative urgency for problem-related alcohol use is becoming well established in the literature and so far, preceding research has focused on the role of negative urgency in predicting alcohol use in relation to general negative affective processes (both emotions and affective traits).

Previous research indicates that the relationship between negative affective traits and problematic alcohol consumption is moderated by negative urgency. Since the research on the valence and activation of discrete negative affective traits and problematic drinking is limited and contradictory, there are no investigations on whether this possible relationship would still depend on negative urgency. Therefore, investigating this relationship between problem-related alcohol consumption and discrete affective traits or the valence and activation of affective traits, and examining whether negative urgency still moderates this potential relationship are some of the goals of these studies that will be possible to examine through the creation of AVATS.

STUDY 1: DEVELOPMENT OF THE ACTIVATION-VALENCE AFFECTIVE TRAITS SURVEY (AVATS)

The aim of Study 1 was to develop the Activation-Valence Affective Traits Survey (AVATS). I sought to create a measure of affective traits that would measure both discrete traits and underlying activation and valence dimensions. In order to attain a self-report measure of emotions that would assess these aspects (Schlosberg, 1952), seven self-report questionnaires (see Methods) were analyzed through an item-level exploratory factor analysis ($N = 616$).

Hypothesis

Based on preceding research on basic emotions, I hypothesized that existing measures of affective traits would assess four groups of discrete families of negative affective traits (fear, hostility, guilt and sadness) and three groups of discrete families of positive affective traits (joviality, self-assurance and attentiveness), similar to the PANAS-X (Watson & Clark, 1994), with discrete emotions that belong to each of the affective trait families. These affective trait categories represent the majority of discrete negative and positive affect, however, they do not provide information on the activation dimension of affective traits. Therefore, these affective traits would be separated into two groups based on their activation level (high – low) (Barrett & Russell, 1998). Therefore, the final scale would have 14 affective trait categories and four emotion adjectives per category, a total of 56 emotion adjectives (see Appendix A).

Method

Design

This study utilized a cross-sectional design that took place on the Indiana University Purdue University Indianapolis (IUPUI) campus or any other location where the participants had access to a computer with Internet connection.

Sample

The sample consisted of 616 adults between 18 and 52 years of age (M = 21.1, SD = 5.05). The sample was 72.9% female, and 75.5% Caucasian (see Appendix B for the sample demographic information).

Measures

Demographics

The demographics and background information questionnaire (Appendix C) was a self-report measure. Items included age, sex, race, marital status, level of education, occupation (if applicable), number of children (if applicable) and socio-economic status.

Affective Trait Questionnaires

The questionnaires used in this study were picked based on a literature search on PsychInfo and Web of Science, as well as the information from the *Handbook of emotion elicitation and assessment* written by Coan and Allen (2007), with the following inclusion criteria: (a) self-report; (b) included measurement on affective traits and/or

included measurement on valence/activation of affective traits; and (c) had published reliability and validity information.

For Study 1, to be able to measure affective traits, instead of emotions and to maintain consistency throughout the scales, the instructions and response scales on the chosen emotion questionnaires were altered to use a 1 to 5 Likert-type scale (1: *very slightly or not at all*, 5: *extremely*). I did this in order to allow for the items to be compared across measures (i.e., to make them all on the same scale), and to try to avoid resulting factors in the factor analysis dependent on the measure from which the item was taken. If items were measured on different scales, it is likely that this would be represented in factors that were related to these measurement differences rather than to true trait level associations. The information on the original questionnaires that were included in this factor analysis is below:

Mood Adjective Checklist

The MACL (Nowlis, 1965) (Appendix D1) is composed of adjectives that assess 12 factors: aggression, anxiety, surgency, elation, concentration, fatigue, social affections, sadness, skepticism, egotism, vigor and nonchalance. Participants rate each adjective on a 4-point scale ranging from 3 (definitely describes how you feel generally), 2 (only slightly applies to your feelings generally), 1 (not clear or cannot decide if it applies to your feelings generally) and 0 (No). The internal reliability for the current sample was .91.

Multiple Affect Adjective Checklist-R

The MAACL (Zuckerman, Lubin, & Rinck, 1983) (Appendix D2) consists of 70 mood adjectives that are divided into five uni-polar scales: anxiety, depression, hostility,

positive affect and sensation seeking. Participants rate each adjective based on a Likert scale. The internal reliabilities of the anxiety, depression, and hostility scales were good (alphas = .80 to .82) (Zuckerman et al., 1983). The internal reliability for the current sample was .93.

Profile of Mood States (POMS)

The POMS (McNair, Lorr, & Droppleman, 1971) (Appendix D3) consists of 65 adjectives and is divided into six factors: Anger-Hostility, Vigor-Activity, Fatigue-Inertia, Confusion-Bewilderment, Tension-Anxiety and Depression-Dejection. Participants rate each adjective on a 5-point scale ranging from 1 (*not al all*), to 5 (*extremely*). Research has shown that the POMS has good internal consistency and concurrent validity with the Beck Depression Scale (Lane & Lane, 2002; Payne, 2001). However, the negative mood scales of the POMS demonstrate poor discriminant validity (Watson & Clark, 1994; Watson & Vaidya, 2003). The internal reliability for the current sample was .95.

Differential Emotions Scale

The DES (Izard et al., 1993) (Appendix D4) measures 10 basic emotions: interest, joy, surprise, sadness, anger, disgust, contempt, fear, shame/shyness and guilt. The participant rates each of the questions on a 5-point scale ranging from 1 (*rarely or never*), to 5 (*quite often or very often*). Research shows that the scales of the DES only have low to moderate internal consistency (Watson & Vaidya, 2003). Disgust scale has been shown to have a coefficient alpha of .56, shame scale = .60, shyness scale = .62, surprise scale = .65, interest scale = .75, joy scale = .83, sadness scale = .85, anger scale = .85, fear scale = .83, guilt scale = .73 (Izard et al., 1993). The internal reliability for the current sample was .88.

The Positive Affect Negative Affect Schedule

The PANAS-X (Watson & Clark, 1994) (Appendix D5) is a measure that has 60 adjectives measuring 11 specific emotions. Participants are asked to rate each adjective based on a 5-point scale, ranging from 1 (*very slightly or not at all*), to 5 (*extremely*). Watson and Clark (1997) demonstrated that all of the negative mood scales were highly reliable with coefficient alphas of .85 for the negative affect scale, .90 for guilt scale, .92 for fear scale, .88 for sadness scale, and .79 for hostility scale. The internal reliability for the current sample was .92 for the negative affect scale, .89 for the fatigue scale, .91 for the fear scale, .88 for the hostility scale, .93 for the guilt scale, and .90 for the sadness scale (Table 1).

Affect Grid

The Affect Grid (Russell, Weiss, & Mendelsohn, 1989) (Appendix D6) is a 9x9 grid with affect descriptors placed at each corner and the midpoint of each side. Participants check the appropriate cell of the grid that represents how they generally feel emotionally. Studies show that the affect grid has good inter-rater reliability (.98 for pleasure and .97 for activation score calculation) and convergent validity with the PANAS (Russell et al., 1989).

Procedure

All of the questionnaires, including informed consent and debriefing forms, were available in electronic form on "Survey Monkey" and on the psychology research website provided by Hanover College. There were 271 items in total. Participants were asked to read each item and indicate the extent they feel that way generally.

Results

Data Cleaning and Screening

Data were analyzed using SPSS, Version 18. The data were examined to ensure that all values were within the appropriate range and to check for missing data. After concluding that 6.67% of the data were missing, and it was at random, I imputed missing data using the linear interpolation approach, which uses ordinary least squares regression to predict the missing values. Monte Carlo studies have been conducted that compare a set of data imputation procedures to traditional, alternative methods of handling missing data, including deletion of missing cases and mean imputation and have found that linear interpolation approaches produce less biased estimates of full sample values (Enders, 2006). There were no outliers in the current data. The data were examined to ensure normality, and all of the surveys met the normality criteria both in terms of skewness and kurtosis (Kline, 1998) (see Appendix E). Normality of the data did not change when the mean values of the adjectives were used as compared to the original adjectives from each scale.

Creating Affective Trait Categories

There was redundancy in some trait adjectives across questionnaires. In order to account for this redundancy, I created mean values for all the adjectives that were repeated on more than one scale for two reasons; (a) using more than one item can increase reliability and (b) I did not want to alter the validity of the existing scales by changing the items originally presented to the participants. As a result of this process, the number of trait adjectives analyzed was reduced from 269 to 203.

Statistical Analysis

Exploratory factor analysis was used to analyze the distribution of items on meaningful scales as initial evidence of construct validity. Principal Axis Factoring (PAF) was used because it analyzes the unique variance of the items (Costello & Osborn, 2005). Oblique rotation was used to allow intercorrelation of factors. The data was factor analyzable (*KMO* = .96, *Bartlett's p* = .00), suggesting that a proportion of variance in the data set might be caused by an underlying factor. There were 33 factors with Eigenvalues larger than 1. Most of the factors did not generate meaningful groups. The scree plot suggested that there were around 20 factors. I also conducted parallel analysis, one of the most accurate but underutilized methods of determining the number of factors to be retained in an exploratory factor analysis (Fabrigar, Wegener, MacCallum, & Strahan, 1999; Velicer, Eaton, & Fava, 2000). Parallel analysis compares the eigenvalues found in a factor analysis to the eigenvalues from 50 random sets of data. The parallel analysis indicated that 22 factors had eigenvalues above eigenvalues that would be expected from random data; thus, the data supported the retention of 22 meaningful factors.

Those adjectives that loaded .4 or above on a factor, and that did not cross load on any other factor for more than .2, were put under that factor (as suggested by Floyd & Widaman, 1995). Based on the adjectives that grouped together as a result of the PAF, I summarized a list of items under each of the 14 subscales that was proposed above, and ran a reliability test of the subscales I created (Table 1; scale a), which were comparable to the reliability of the PANAS-X scales (Table 1). The 14 categories I proposed did not capture some of the factors that were created by the PAF, indicating that we did not have some of the affective categories that are essential to measure the full domain of affective traits. Upon studying some of these factors that were created as a result of the PAF, I created five additional scales to fully capture the content domain (Ekman, 1999): the surprise scale (high activated positive), the shyness and serenity scales (low activated positive), the lethargic scale (low activated negative), and the embarrassment scale (high activated negative).

Therefore, analyzing the PAF results and the items that loaded .4 or above on a scale without cross loading to any other scales more than .2, and adding the additional 5 scales led to the production of 19 scales (Table 1; scale a). The remaining 3 scales that were indicated by PAF and parallel analysis, but were not considered to be meaningful, were not included in the final scale. For example, one factor represented all negative loadings of high-activated joviality, a second factor seemed to suggest a second fear factor, but did not have .40 loadings on items with no .20 cross loadings on other previous factors.

In order to establish content validity of these new scales, I gave the list of adjectives and the 19 categories suggested above to three trained raters with expertise in affect research, and asked them to categorize the adjectives. Words were retained on a scale if at least 2 out of 3 raters agreed upon the classification, and the reliability of these scales were also examined (Table 1; scale b).

In order to further examine the unidimensionality of each of these new scales, I examined the item-total correlations of the adjectives that 2 out of 3 raters agreed upon, and retained the four highest items for each scale and re-examined the internal consistency of the scales (Table 1; scale c).

The final AVATS included 19 subscales; four in the high activation negative group, six in the low activation negative group, four in the high activation positive group, and five in the low activation positive group (Appendix F). Each subscale has four discrete adjectives, thus the final scale consisted of 76 items, with a 5-point Likert-type scale (1 = *very slightly or not at all*, to 5 = *extremely*). The inter-scale correlations ranged from -.05 to .77 with an average of .13 (Appendix G).

Construction of Higher Order Affective Trait Scales

Each subscale mentioned above was coded by taking the average of the emotion adjectives that belonged to that scale. The following scales were created by taking the mean of the adjectives that are under the specific subscales in the hierarchical table (Appendix F): Fear-high activation, fear-low activation, fear total, hostility-high

activation, hostility-low activation, hostility total, guilt-high activation, guilt-low activation, guilt total, sadness-high activation, sadness-low activation, sadness total, lethargic, embarrassment, joviality-high activation, joviality-low activation, joviality total, self-assurance-high activation, self-assurance-low activation, self-assurance total, attentiveness-high activation, attentiveness-low activation, attentiveness total, surprise, and serenity. In addition to these scales, several higher order emotion scales were also constructed: Positive-high activation, positive-low activation, positive total, negative-high activation, negative-low activation, negative total, activation, and valence.

Study One Discussion

The purpose for Study 1 was to create an affective trait survey that measures both discrete affective traits and their underlying dimensions of valence and activation. In order to do so, seven existing measures were administered to 616 adults and the data were factor analyzed to determine individual scales that would best represent the discrete and dimensional trait categories that exist in the literature. As a result of the preliminary reliability analysis and PAF analysis, the new instrument included the 19 subscales and four adjectives representing each scale. These subscales, higher order scales, as well as the overall scale, were found to have adequate internal reliability and content validity to be used in the second part of this study.

STUDY 2: THE RELIABILITY AND THE CONVERGENT, DISCRIMINANT, AND CRITERION-RELATED VALIDITY OF THE AVATS IN AN INDEPENDENT SAMPLE

The goal of this second study was to further examine the convergent, discriminant, and criterion-related validity of the newly created AVATS and to examine the additive and interactive roles of urgency with emotions for the prediction of alcohol consumption.

Hypotheses

1. The AVATS will have good convergent and discriminant validity when compared to PANAS-X and the Affect Grid.

2. The AVATS will have a good fitting model in a confirmatory factor analysis. Specifically, I hypothesize that AVATS Model 2, in which first order affective traits are grouped by second order discrete emotions and third level valence dimensions, will fit the data better than Model 1, in which first order affective traits are grouped by second order activation dimensions and third order valence dimensions.

3. Negative-high activated emotions will predict problem related alcohol consumption over and above the negative-low activated emotions.

4. Negative urgency will moderate the relationship between negative-low activation emotions and problematic alcohol consumption, as well as the relationship between negative-high activation emotions and problematic alcohol consumption.

Method

Design

This study utilized a cross-sectional, correlational methodological design to evaluate the study hypotheses. All measures were obtained by self-report measures at one time.

Sample

Based on the recommendations of Comrey and Lee (1992) as well as MacCallum and colleagues (1999) to obtain samples of 500 for factor analytic studies, 510 adults were sampled between the ages of 18 and 58 (M = 21.02, SD = 4.96). The sample was 75.3% female and 80% Caucasian (see Appendix B for the sample demographic information). Participants were students in an introductory psychology course.

Measures

Demographics

The demographics questionnaire (Appendix A) included age, ethnicity, marital status, level of education, occupation (if applicable), number of children (if applicable) and socio-economic status.

AVATS

The AVATS that was created in Study 1 was used in the current study (Appendix H). The AVATS had 19 subscales measuring different affective traits and eight higher order scales. Both the individual and the higher order scales have good internal reliability in the current sample, which will be presented below (see Table 1: Final AVATS).

Affect Grid

The Affect Grid (Russell et al., 1989) (Appendix D6) was discussed in Study 1.

PANAS-X

The PANAS-X (Watson & Clark, 1994) (Appendix D5) was discussed in Study 1. The internal reliabilities for the current sample were .85 for negative affect scale, .83 for fatigue scale, .86 for guilty scale, .84 for fear scale, .87 for sadness scale, and .82 for hostility scale (Table 1).

Negative Urgency Scale of The UPPS –P

The UPPS-P (Lynam, Smith, Cyders, Fischer, & Whiteside, 2007) (Appendix I) is a 59 item self-report scale. Items are answered using a 4-point Likert scale, ranging from 1 (*agree strongly*) to 4 (*disagree strongly*). The UPPS-P is designed to measure the five impulsivity facets: lack of planning, lack of perseverance, sensation seeking, negative urgency and positive urgency. The negative urgency scale, which has been shown to have good internal consistency (Cronbach's alpha = .88) (Cyders & Smith, 2007), will be used for the purpose of this study. The internal reliability of the negative urgency scale for the current sample was .88.

Drinking Styles Questionnaire

The DSQ (DSQ; Smith, McCarthy, & Goldman, 1995) (Appendix J) is a self-report questionnaire that assesses information about one's frequency of alcohol use, quantity of alcohol use, and problems associated with alcohol use and other related drinking behaviors. The measure provides two subscales: The drinking/drunkenness subscale (five items) and the alcohol-related problems subscale (eight items). The DSQ has been shown to have adequate internal consistency and convergent validity in previous samples, and has been well validated in a college-student sample (Cyders et al., 2007; Smith et al., 1995). According to previous research, the coefficient alpha for the alcohol-related problems subscale of the DSQ ranged from .80 to .84 (Cyders et al., 2009; Smith et al., 2007). Previous studies with this questionnaire also demonstrated good test-retest reliability of .91 (Smith et al., 1995). The internal reliability for the alcohol-related problems subscale of the DSQ for the current sample was .81.

Procedure

Students enrolled in the introductory psychology course were recruited through the Experimetrix system, with a link that took the participants into the study web page. All participants had to be 18 years or older to participate. All of the questionnaires, including informed consent and debriefing forms, were available in electronic form on "Survey Monkey".

Results

Data Cleaning and Screening

Data were analyzed using SPSS, Version 18. The data were examined to ensure normality, and no variables had a skew greater than absolute value of 3.0 or kurtosis greater than absolute value of 10.0, so they met the criteria for normality (Kline, 1998)

(see Table 2). In the case of missing data, data were imputed using the linear interpolation approach, which uses ordinary least squares regression to predict the missing values. 2.15% of the data were missing, and it was missing at random. There were no outliers. All of the continuous variables were centered before the interaction terms were created.

Statistical Analyses

Several statistical analyses were performed to test the hypotheses of this study. First, I created the valence and activation scales from the AVATS. Second, I examined the reliability. Third, I examined the construct validity of the AVATS by (a) examining the relationship of the AVATS with existing measures (the Affect Grid, and the PANAS-X) and (b) conducting a confirmatory factor analysis of the AVATS. Finally, I conducted a series of specific, theory-driven hierarchical linear regression analyses to examine the criterion-related validity of the AVATS, as detailed below.

Construction of the Valence and Activation Scales of the AVATS

Higher order scales mentioned above were constructed by calculating the mean of all the subscales that belong to each of them (Appendix F). The activation and the valence scale were computed as indicated below:

Activation = Negative high activation + Positive high activation – Negative low activation – Positive low activation

Valence = Positive high activation + Positive low activation – Negative high activation – Negative low activation

Reliability of the AVATS

The internal consistency reliabilities for the subscales and higher order scales were adequate, ranging from .63 to .95 (Table 1; final AVATS).

Construct Validity of the AVATS

Intercorrelations and correlations with existing measures. An intensive examination of inter-scale correlations was performed for the higher order scales and, in general, findings were as expected (see Table 3): There were low correlations between the positive and negative subscales, negative correlations between negative subscales and the valence scale, and positive correlations between the positive subscales and the valence scale. Similarly, high-activation subscales had positive correlations with the activation subscale, whereas, low-activation subscales had negative correlations with the activation subscale. Moreover, in order to examine the convergent and discriminant validity of the new scale, the AVATS was also compared to PANAS-X; one of the well validated measures of discrete affective traits, as well as the Affect Grid, which is a widely used measure of the valence and activation categories of affective traits.

Comparison analyses with the PANAS-X scales. In order to evaluate the convergent and discriminant validity of the AVATS, a comparison to PANAS-X was performed. Fourteen out of the 19 scales from the AVATS seemed to be measuring the same constructs as the 14 scales proposed by the PANAS-X. Therefore, the 13 scales from the AVATS (including two higher order emotion scales) were compared to the 13 PANAS-X scales. Table 4 shows that each subscale in the AVATS is strongly related to its PANAS-X counterpart, with convergent correlations (cross-method, inter-trait correlations) ranging from .67 to .96. Moreover, the correlation table shows that the AVATS has good discriminant validity, with absolute value of discriminant correlation (cross-method, cross-trait) ranging from .09 to .49. However, it is important to recognize that most of these high correlations may reflect the item overlap between the AVATS and the PANAS-X, which share 60 out of the 76 adjectives assessed in AVATS. Nevertheless, these significant correlations indicate that these scales measure affective

traits that are similar to one another. However, there still seems to be some uniqueness between the scales, apparent from the high cross-method inter-trait correlations. Moreover, I was only able to use a subset of the AVATS in this comparison because the PANAS-X does not include as much content, indicating that the new scale is measuring different contents the PANAS-X is not.

Comparison analyses with the Affect Grid scales. To further evaluate the convergent and discriminant validity of the AVATS, two of the higher order emotion scales (valence and activation) were compared to the valence and activation scales of the Affect Grid (Table 5). Again, the pattern of correlations was generally as expected. The correlations between the activation and the valence scales were significant, implying that these two subscales in the AVATS measured related constructs as those measured by the Affect Grid, demonstrating convergent but not discriminant validity because the magnitude of the correlations that would indicate discriminant validity were larger than the convergent validity values. Moreover, high-activated categories correlated positively with the activation scale from the AVATS, whereas low activated categories correlated negatively with the activation scale. Additionally, negatively valenced items correlated negatively with the valence scale from the AVATS, whereas positively valenced items correlated positively with the valence scale. When these correlations were repeated with the valence and activation scores from the Affect Grid, negatively valenced items correlated negatively with the valence scale from the AVATS, whereas positively valenced items correlated positively with the valence scale. However, the activation scale did not discriminate between high and low activated emotions; negatively valenced emotions (regardless of their activation level) correlated negatively with the activation scale from the Affect Grid and positively valenced emotions (regardless of their activation level) correlated positively with the activation scale from the Affect Grid (Table 5).

Confirmatory Factor Analysis

In order to replicate and provide further evidence for the factor structure of the AVATS, a confirmatory analysis was conducted to compare two possible models using AMOS. I used the weighted least squares estimation method. Each emotion item was identified as an observed variable, whereas the higher order categories were identified as latent variables. I conceptualized the scale by tapping into underlying dimensions of affective traits. The factors were allowed to intercorrelate in each model. I used the following fit indices in analyzing the fit of each model; RMSEA (0: perfect fit; no upper limit); CFI and TFI, ranging from 0 (*poor*) to 1 (*good*); and the change in chi square was used to determine which model fit the state better.

In Model 1, the first level latent variables were the 19 subscales created in Study 1, grouped in terms of activation. Second level latent variables were the following higher order scales: negative high, negative low, positive high, and positive low. The third level latent variables were the valence variables: positive and negative (Figure 1a, b). The chi-square for Model 1 was 8960.06 ($df = 2756$, $p < .001$). Both CFI and TFI estimates were below .90 ($CFI = .69$; $TFI = .67$), RMSEA estimates fell between a good fit and a fair fit based on the conventional rules of thumb ($RMSEA = .066$). The fit indices for Model 1 suggest a less than ideal fit of the model to the data.

In Model 2, the first level latent variables were the 19 subscales created in Study 1, grouped in terms of discrete emotions. Second level of latent variables was the discrete affective traits. The third level of latent variables was the valence variables: positive and negative (Figure 2a, b). The chi-square for model 1 was 6964.26 ($df = 2747$, $p < .001$). Both CFI and TFI estimates were below .90 ($CFI = .79$; $TFI = .78$), RMSEA estimates indicated good fit based on the conventional rules of thumb ($RMSEA = .055$). The fit indices for Model 2 suggest a fair fit of the model to the data. Moreover, a chi-square difference test suggested that Model 2 fits the data significantly better than Model 1 (X^2 *difference* = 1995.80, $df = 9$, $p < .001$).

Hierarchical Regression

In order to examine the criterion-related validity of the AVATS, I conducted two hierarchical regression analyses to test the study hypotheses (according to Cohen, Cohen, West, & Aiken, 2003) using the PASW Statistic 18. The dependent variable in each regression was problem-related alcohol consumption, which is operationalized with the alcohol related problems scale in the DSQ. Moreover, sex was entered in the first step of every regression to control for any effects of sex on the dependent variable. The correlational relationships between the variables included in the hierarchical regression analyses can be found in Appendix K.

1. *Negative-high activated affective traits will predict problem-related alcohol consumption over and above the negative-low activated affective traits:* I tested this hypothesis by using the groups of affective traits created based on the Barrett and Russell's dimensional approach (1998). The group of negative-low activation affective traits was entered in Step 2. The group of negative-high activation affective traits was entered in Step 3. Negative-low activated traits significantly predicted problem-related alcohol consumption (β = .26, p = .001) whereas, negative-high activated traits did not predict problem-related alcohol consumption significantly (β = -.16, p = .07) (Table 6).

2. *Negative urgency will moderate the relationship between negative-low activation affective traits and problematic alcohol consumption, as well as the relationship between negative-high activation affective traits and problematic alcohol consumption:* I tested this hypothesis by using the groups of affective traits created based on the Barrett and Russell's dimensional approach (1998). Negative-low activation traits, negative-high activation traits, and negative urgency were entered in Step 2. The interaction between negative-low activation traits and negative urgency, as well as the interaction between negative-high activation traits and negative urgency were entered in Step 3. Negative urgency (β = .22, p < .00), negative-low activation traits (β = .23, p = .02), and negative high-activation traits (β = -.27, p = .00) significantly predicted problem-related alcohol consumption. However, negative urgency did not moderate either of these relationships (negative urgency x negative-low activation traits β = -.01, p = .93 and negative urgency x negative-high activation traits β = .09, p = .40) (Table 7).

Study Two Discussion

The overarching goal of this paper was to create a reliable and valid measurement (AVATS) that can assess discrete affective traits, including the valence and activation levels of affect. The aim of Study 1 was to create one measure of affective traits that measures both the discrete and the underlying dimensions of affective traits. A sample of 616 adults participated in the study. As a result of factor analysis, preliminary reliability analysis, and PAF, the final AVATS included 19 subscales with four adjectives representing each scale, with adequate internal reliability and content validity. The aims of Study 2 were (a) to examine the construct validity of the AVATS using confirmatory factor analysis; (b) to examine convergent and discriminant validity of the AVATS; and (c) to examine the criterion-related validity of the AVATS through its ability to predict problem-related alcohol consumption.

For the confirmatory factor analysis, Model 2, in which the first level latent variables were the 19 subscales created in Study 1, grouped in terms of discrete emotions, second level latent variables were the discrete emotion scales, the third level latent variables were the valence variables: positive and negative, provided better fit than the alterative model tested. However, it is important to note that neither model provided an ideal level of fit and it is likely that there are other alternative models that might be more parsimonious and appropriate for the data. Future research should examine other alternative models of the AVATS, which may have a better fit than the two models that have been proposed in this study.

The convergent and discriminant validity of the AVATS was examined through correlational analyses with the PANAS-X and the Affect Grid. Even though the correlations from these analyses would indicate good convergent and discriminant validity, it should be kept in mind that the AVATS and the PANAS-X share a big portion of their items. This criterion contamination likely over-inflated the convergent validity estimates; therefore, we did not have an ideal test of convergent and discriminant validity in this study, which should be examined in future studies. The AVATS had adequate criterion-related validity and was able to predict problem-related alcohol consumption, as would be expected. However, although there is existing data to suggest that affect should

interact with urgency to predict alcohol consumption, this was not supported in the current study, indicating some limited criterion-related validity concerns. Future research should examine other criteria of interest to provide further support for the criterion-related validity of the AVATS.

GENERAL DISCUSSION

As a result of these two studies, a measure of affective traits was created that assesses both the discrete and the underlying dimensions of affective traits reliably. The measure showed some evidence of construct and criterion-related validity. The AVATS did not correlate as expected with the Affect Grid, the test of convergent validity with the PANAS-X was affect by criterion contamination, and the AVATS did not interact with urgency to predict alcohol consumption. These limitations will be discussed below.

The AVATS might offer an improvement over the PANAS-X in that it offers more information on both the discrete and the underlying dimensions of affective traits, it takes about the same time to complete both measures, and it has good reliability and validity. The AVATS also offers a larger variety of meaningful reliable subscales than the PANAS-X, which allows for a more thorough assessment of affective traits, which future research should use to examine the criterion validity of these subscales in predicting constructs over and above the PANAS-X. Future research should examine the trade-off between the use of the AVATS and the PANAS-X to predict a wide range of psychological phenomena. This study only demonstrated the predictive utility of AVATS in terms of alcohol consumption. Research examining the role of affect traits in risky behaviors, such as drug use, smoking, and gambling, might benefit from the extensive information that AVATS provides, which is not available through any of the current affective traits assessments.

Barrett, Robin, Pietromonaco and Eyssell (1998) showed that trait reports of emotions are more biased by gender stereotypes than state reports of emotions, in that women report themselves as more emotional than how men report themselves. Therefore, I controlled for sex in all of the regression analyses. Based on the first regression analysis (hypothesis 3, Study 2), only negative-low activated affective traits significantly

predicted problem-related alcohol consumption. These results suggest that as people score higher on the negative-low activated traits, their score on problematic-alcohol consumption also increases. The second regression analysis (hypothesis 4, Study 2) showed that negative urgency, negative-low activation traits, and negative high-activation traits significantly predicted problem-related alcohol consumption. Based on the second regression analysis, negative high-activation traits seem to be predicting risky alcohol consumption in a negative way, in that the higher one scores on the negative-high activation scale, the lower they score on the problem-related alcohol consumption scale. Negative urgency was not a moderator for either of these relationships (Table 7).

Although negative high-activation traits were positively related to problematic alcohol consumption, when negative urgency was included in the analysis as a moderator, there was a negative relationship between negative high-activation traits and alcohol consumption. Further analysis of this negative relationship between problematic drinking and negative-high activation scale revealed a positive correlational relationship between these two variables (Appendix K). Thus it is likely that the direction of the relationship was reversed due to a suppression effect between negative-high activation and negative-low activation scales. Below I will discuss the limitations of these findings and the analyses conducted, and I will suggest future avenues of analysis to determine the meaningfulness of these findings.

STUDY LIMITATIONS

The current study does have a number of limitations. First, the data is based on self-report of only college students; therefore, the generalizability of the study will be limited to this group. Second, the AVATS that was created at the end of Study 1 has not been used in any other research or population; therefore, the validity and reliability of this measure should be tested in other studies. Third, the design of Study 2 is not experimental; therefore, no causal conclusions can be made.

Fourth, hypotheses 3 and 4 in Study 2 were not fully supported and there are multiple possible explanations for the results of these analyses. One possibility may be that my hypotheses were wrong and in fact it is negative low-activation affective traits that relate to alcohol use rather than negative high-activation, although, based on existing research and the positive correlation between negative high-activation affect and alcohol consumption, this explanation is somewhat unlikely (Appendix G; Clark & Watson, 1991; Leith & Baumeister, 1996). Secondly, the lack of support for hypothesis 3 and 4 of Study 2 may be due to the operationalization of the dependent variable in these analyses; it might be that negative-high activation affective traits related to the amount of alcohol consumption, rather than problems (Clark & Watson, 1991; Raghunathan & Pham, 1999). Moreover, the negative-high activation and the negative-low activation scales are multicollinear (Appendix G). The strong overlap between these two variables suggests the positive relationship between negative high-activation and negative low-activation traits with problematic alcohol consumption are shared between the two negative affective traits scales. This issue with multicollinearity could be resolved by merging the negative-high activated and negative-low activated affective traits; however, analysis at this higher order level would mask potentially important differences between high and low activated negative affective traits. In order to test how much of the variance of the

estimated regression coefficients are biased due to collinearity, I ran additional collinearity analyses; variance inflation factor values were not larger than 5, indicating that multicollinearity was not problematic for these regressions (Tables 6 and 7); therefore, multicollinearity does not seem to be the most probable explanation for these null findings. Fourthly, the negative relationship between negative high-activation affective traits and problem-related alcohol consumption may be a suppression effect. This should be examined more fully in future research.

Another limitation of this paper is the method used to examine the construct validity of the AVATS. The AVATS was compared to an affective traits survey that is commonly used and well validated, the PANAS-X; however, due to the use of the PANAS-X in the development of the AVATS, there is a large amount of shared items between these two scales. Therefore, this comparison was not a good representation of construct validity, and is plagues with criterion contamination. Moreover, the comparison of AVATS to the Affect Grid revealed some unexpected results as mentioned above, which may be due to how the valence and activation scales are calculated for the AVATS, or due to the fact that affect grid measures valence and activation with one value, suggesting difficulties with reliability of these one-item measurements. Therefore, future research should examine the construct validity of AVATS with other well-validated measures of the valence and activation of affective traits that might not overlap so much in content.

In addition to the limitations listed above, the current paper only compared two models of the AVATS; even though Model 2 fit the data better, it did not provide perfect fit. Thus, future research should examine alternative models of the AVATS. For example, another possible model could have the 19 subscales as the first level of latent variables, followed by the valence (positive vs. negative), with the activation as the third level of latent variables (high vs. low activation). Additionally, Model 2 was supported more highly than Model 1 in the current study, and hypotheses 3 and 4 were related more to a structure of affect suggested by Model 2. Therefore, given the fit statistics of Model 1, it is not surprising that hypotheses 3 and 4 were not supported. Future research should examine hypotheses 3 and 4 using an approach more consistent with Model 2: examining

whether fear subscale predicts problem-related alcohol consumption over and above the hostility subscale. Therefore, it is possible that the AVATS might have stronger criterion-related validity if I examined the discrete subscale level as mentioned above. Moreover, it would be better to examine how the AVATS can predict problematic drinking and any other variable of interest, over and above the PANAS-X.

Finally, the current study aimed to create a new affective traits measure using existing trait measures as the input to a factor analysis. There are problems with this approach. If items do not exist on current measures, they will not be represented in a factor on the factor analysis (as was the case with surprise and shyness, for instance). Additionally, you are bound by the adjectives that previous measures have used, which may or may not be the best representation of the affective realm. An alternative approach could be to start with the construction of theoretically appropriate categories and then author items that would represent each of these categories. This approach might have lead to more interpretable factor analysis results; however, I found it important to characterize what items do exist in measures of affective traits. Since there is a paucity of measures that assess the activation level of affective traits, this factor, not surprisingly, was not represented in the factor analysis, which would have been avoided if I had taken the top down approach of beginning with categories rather than data. However, the approach taken here has been successfully used in other literatures (see Whiteside & Lynam, 2001 as an example) and can help to create a new measure and characterize the current state of affective trait measurement.

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TABLES

Table 1

Reliability of the AVATS and the PANAS-X

	Study 1				Study 2	
	Scale a	Scale b	Scale c	Panas-X	Final AVATS	Panas-X
Fear High	.93	.91	.91	n.a.	.82	n.a.
Fear Low	.86	.86	.85	n.a.	.79	n.a.
Hostility High	.92	.92	.88	n.a.	.78	n.a.
Hostility Low	.93	.91	.90	n.a.	.83	n.a.
Guilt High	.92	.86	.90	n.a.	.82	n.a.
Guilt Low	.79	.87	.84	n.a.	.76	n.a.
Sadness High	.90	.88	.90	n.a.	.80	n.a.
Sadness Low	.96	.96	.93	n.a.	.85	n.a.
Joviality High	.95	.94	.93	n.a.	.83	n.a.
Joviality Low	.92	.92	.92	n.a.	.84	n.a.
Self-assurance High	.86	.82	.79	n.a.	.71	n.a.
Self-assurance Low	.92	.90	.87	n.a.	.68	n.a.
Attentiveness High	.80	.79	.81	n.a.	.63	n.a.
Attentiveness Low	.68	.61	.75	n.a.	.65	n.a.
Surprised	.85	.75	.85	.83	.67	.66
Shy	.86	.84	.86	.85	.79	.75
Serenity	.85	.85	.85	.84	.78	.73
Embarrassment	n.a.	n.a.	n.a.	n.a.	.74	n.a.
Lethargic / Fatigue	.92	.92	.89	.89	.83	.83
Fear Total	.93	.94	.93	.91	.88	.84
Hostility Total	.93	.95	.93	.88	.88	.82
Guilt Total	.92	.92	.92	.93	.88	.86
Sadness Total	.94	.97	.94	.90	.91	.87
Joviality Total	.95	.96	.95	.94	.89	.90
Self-assurance Total	.85	.91	.85	.83	.73	.75
Attentiveness Total	.79	.87	.79	.79	.69	.67
Positive High	.92	.94	.92	n.a.	.85	n.a.
Positive Low	.83	.94	.83	n.a.	.78	n.a.
Positive Total	.92	.97	.92	.92	.88	.83
Negative High	.95	.96	.95	n.a.	.92	n.a.
Negative Low	.95	.98	.95	n.a.	.92	n.a.
Negative Total	.97	.98	.97	.92	.95	.85
Valence	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Activation	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Note: Scales a: Initial scale I created; Scale b: Scale based on the input of the other raters; Scale c: Final scale after item-total correlations of the scales.

Table 2

Normality Data of Variables (Study 2)

Variable	Skewness	Kurtosis	Mean	SD
NUR	.15	-.49	2.31	.61
Problematic drinking	.80	.08	2.44	2.32
Negative-Low activation	.86	.81	1.64	.58
Negative-High activation	1.55	2.69	2.20	.65

Table 3

Between-Scale Correlations (Study 2)

	Negative high	Negative low	Negative total	Positive high	Positive low	Positive total	Activation	Valence
Negative high	1	.86**	.96**	-.21**	-.19**	-.28**	-.01	-.81**
Negative low	-	1	.97**	-.31**	-.26**	-.32**	-.33**	-.87**
Negative total	-	-	1	-.27**	-.23**	-.29**	-.21**	-.87**
Positive high	-	-	-	1	.56**	.88**	.62**	.67**
Positive low	-	-	-	-	1	.88**	-.13**	.61**
Positive total	-	-	-	-	-	1	.2**	.72**
Activation	-	-	-	-	-	-	1	.30**
Valence	-	-	-	-	-	-	-	1

Note. ** $p < .01$.

Table 4

Correlations between the AVATS and the PANAS-X (Study 2)

	AVATS												
PANAS-X	1	2	3	4	5	6	7	8	9	10	11	12	13
1	.92**	.56**	.67**	.62**	-.28**	-.19**	-.08	.34**	.38**	-.31**	.29**	.80**	-.12**
2	.60**	.88**	.67**	.72**	-.37**	-.24**	-.11*	.26**	.44**	-.32**	.19**	.83**	-.22**
3	.67**	.59**	.96**	.80**	-.42**	-.24**	-.12**	.34**	.42**	-.36**	.17**	.87**	-.24**
4	.58**	.59**	.70**	.87**	-.49**	-.28**	-.10*	.32**	.42**	-.36**	.09	.79**	-.29**
5	-.31**	-.36**	-.37**	-.50**	.95**	.70**	.43**	-.26**	-.39**	.62**	.37**	-.46**	.83**
6	-.33**	-.16**	-.33**	-.37**	.61**	.78**	.46**	-.34**	-.27**	.47*	.27**	-.35**	.66**
7	-.23**	-.22**	-.34**	-.34**	.50**	.44**	.67**	-.16**	-.27**	.37**	.12**	-.34**	.58**
8	.42**	.34**	.40**	.41**	-.25**	-.27**	-.06	.93**	.24**	-.08	.09*	.47**	.01
9	.41**	.49**	.39**	.46**	-.38**	-.27**	-.26**	.19**	.96**	-.44**	-.04	.59**	-.35**
10	-.41**	-.32**	-.38**	-.42**	.61**	.45	.35**	-.08	-.42**	.87**	.13**	-.46**	.64**
11	.18**	.09*	.10*	.03	.38**	.36**	.26**	.01	-.11*	.24**	.95**	.11*	.54**
12	.86**	.76**	.79**	.77**	-.398**	-.25**	-.12**	.35**	.51**	-.38**	.25**	.92**	-.22**
13	-.29**	-.31**	-.37**	-.44**	.76**	.71**	.70**	-.25**	-.34**	.54**	.33**	-.41**	.81**

Note. 1: Fear; 2: Hostility; 3: Guilty; 4: Sadness; 5: Joviality; 6: Self-assurance; 7: Attentiveness; 8: Shyness; 9: Lethargic; 10: Serenity; 11: Surprise; 12: Negative affect; 13: Positive affect; Underline: Cross method-inter trait; Rest: Cross method-cross trait.
* $p < .05$; ** $p < .01$

Table 5

Correlations between the AVATS and the Affect Grid (Study 2)

	Activation_es	Valence_es	Activation_ag	Valence_ag
Activation_es	1	.30**	.20**	.13*
Valence_es	.30**	1	.31**	.52*
Fear high	-.06	-.62**	-.09*	-.25**
Hostility high	.06	-.64**	-.08	-.34**
Guilty high	-.06	-.75**	-.22**	-.41**
Sadness high	-.01	-.73**	-.22**	-.46**
Negative high	-.01	-.81**	-.18**	-.43**
Joviality high	.42**	.71**	.35**	.43**
Self-assurance high	.58**	.50**	.25**	.20**
Attentiveness high	.46**	.61**	.26**	.30**
Surprise	.41**	.13**	.17**	.06
Positive high	.62**	.67**	.35**	.34**
Fear low	-.22**	-.67**	-.10*	-.30**
Hostility low	-.29**	-.65**	-.08	-.36**
Guilt low	-.14**	-.65**	-.12**	-.30**
Sadness low	-.25**	-.79**	-.28**	-.49**
Lethargic	-.39**	-.62**	-.20**	-.30**
Embarrassment	.11*	-.53**	-.08	-.27**
Negative low	-.33**	-.87**	-.20**	-.45**
Joviality low	.13**	.75**	.31**	.48**
Self-assurance low	.06	.53**	.26**	.32**
Attentiveness low	-.12*	.17**	.03	.01
Shy	-.47**	-.27**	-.15**	-.18**
Serenity	.08	.67**	.21**	.37**
Positive low	-.13**	.61**	.21**	.33**
Negative	-.19**	-.87**	-.20**	-.45**
Positive	.28**	.72**	.32**	.38**

Table 6

Hypothesis 3 Regression Output (Study 2)

		B	SE B	Beta	t	sig.	VIF
1	Sex	.12	.24	.02	.50	.62	1.00
2	Sex	.07	.24	.01	.30	.76	1.01
	NegativeLow	.43	.16	.12	2.74	.01	1.01
3	Sex	.01	.24	.00	.04	.97	1.03
	NegativeLow	.93	.31	.26	2.97	.00	3.99
	NegativeHigh	-.64	.35	-.16	-1.84	.07	3.97

Table 7

Hypothesis 4 Regression Output (Study 2)

		B	SE B	Beta	t	sig.	VIF
1	Sex	.07	.24	.01	.28	.78	1.00
2	Sex	-.11	.23	-.02	-.45	.66	1.02
	Cnur	.84	.20	.22	4.40	.00	1.35
	c_NegativeLow	.71	.33	.20	2.17	.03	4.65
	c_NegativeHigh	-.78	.34	-.21	-2.33	.02	4.42
3	Sex	.12	.23	-.02	-.49	.63	1.02
	Cnur	.85	.20	.22	4.42	.00	1.35
	c_NegativeLow	.80	.34	.23	2.36	.02	4.88
	c_NegativeHigh	-.99	.36	-.27	-2.72	.01	5.23
	cnurXc_NegativeLow	-.04	.50	-.01	-.09	.93	5.40
	cnurXc_NegativeHigh	.41	.50	.09	.85	.40	5.97

FIGURES

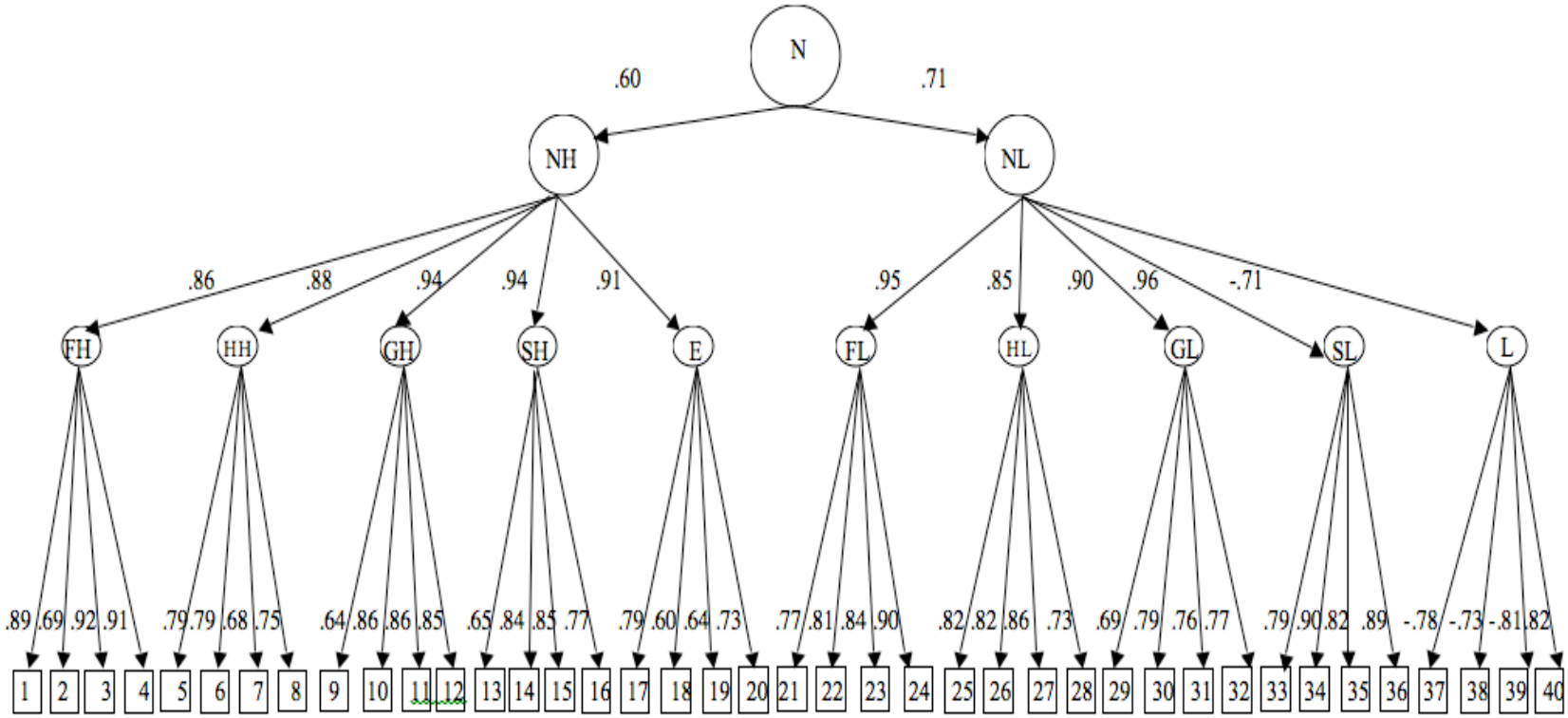


Figure 1a. Model 1 of the AVATS for CFA (Study 2). Correlation between N and P (Figure 1b) is -.98. N: Negative; NH: Negative-high activation; NL: Negative-low activation; FH: Fear-high activation; HH: Hostility-high activation; GH: Guilt-high activation; SH: Sadness-high activation; E: Embarrassment; FL: Fear-low activation; HL: Hostility- low activation; GL: Guilt- low activation; SL: Sadness- low activation; L: Lethargic; 1: Frightened; 2: Panicky; 3: Fearful; 4: Scared; 5: Angry; 6: Furious; 7: Hostile; 8: Scornful; 9: Guilty; 10: Angry at self; 11: Disgusted with self; 12: Dissatisfied with self; 13: Tormented; 14: Suffering; 15: Miserable; 16: Destroyed; 17: Humiliated; 18: Mortified; 19: Embarrassed; 20: Disgraced; 21: Afraid; 22: Anxious; 23: Nervous; 24: Uneasy; 25: Annoyed; 26: Mad; 27: Irritated; 28: Grouchy; 29: Blameworthy; 30: Regretful; 31: Sorry; 32: Sorry for things done; 33: Blue; 34: Sad; 35: Discouraged; 36: Unhappy; 37: Drowsy; 38: Sluggish; 39: Tired; 40: Worn-out

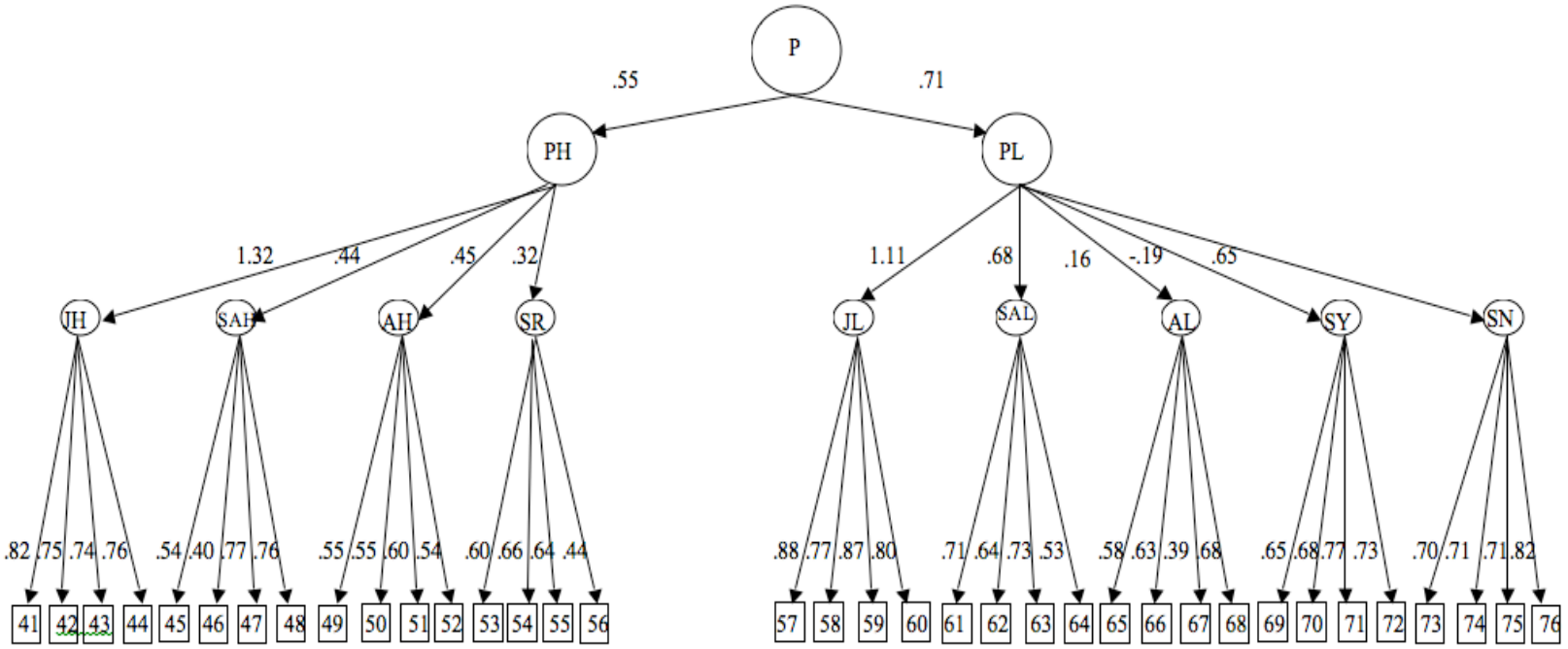


Figure 1b. Model 1 of the AVATS for CFA (Study 2). Correlation between N (Figure 1a) and P is -.98. P: Positive; PH: Positive-high activation; PL: Positive-low activation; JH: Joviality-high activation; SAH: Self-assurance-high activation; AH: Attentiveness-high activation; SR: Surprise; JL: Joviality-low activation; SAL: Self-assurance-low activation; AL: Attentiveness-low activation; SY: Shy; SN: Serenity; 41: Energetic; 42: Lively; 43: Cheerful; 44: Enthusiastic; 45: Bold; 46: Strong; 47: Daring; 48: Adventurous; 49: Active; 50: Alert; 51: Attentive; 52: Inspired; 53: Amazed; 54: Astonished; 55: Surprised; 56: Shocked; 57: Glad; 58: Pleased; 59: Happy; 60: Satisfied; 61: Friendly; 62: Good-natured; 63: Kindly; 64: Warm; 65: Introspective; 66: Engaged in thought; 67: Earnest; 68: Contemplative; 69: Bashful; 70: Quiet; 71: Shy; 72: Timid; 73: Calm; 74: Peaceful; 75: Refreshed; 76: Relaxed

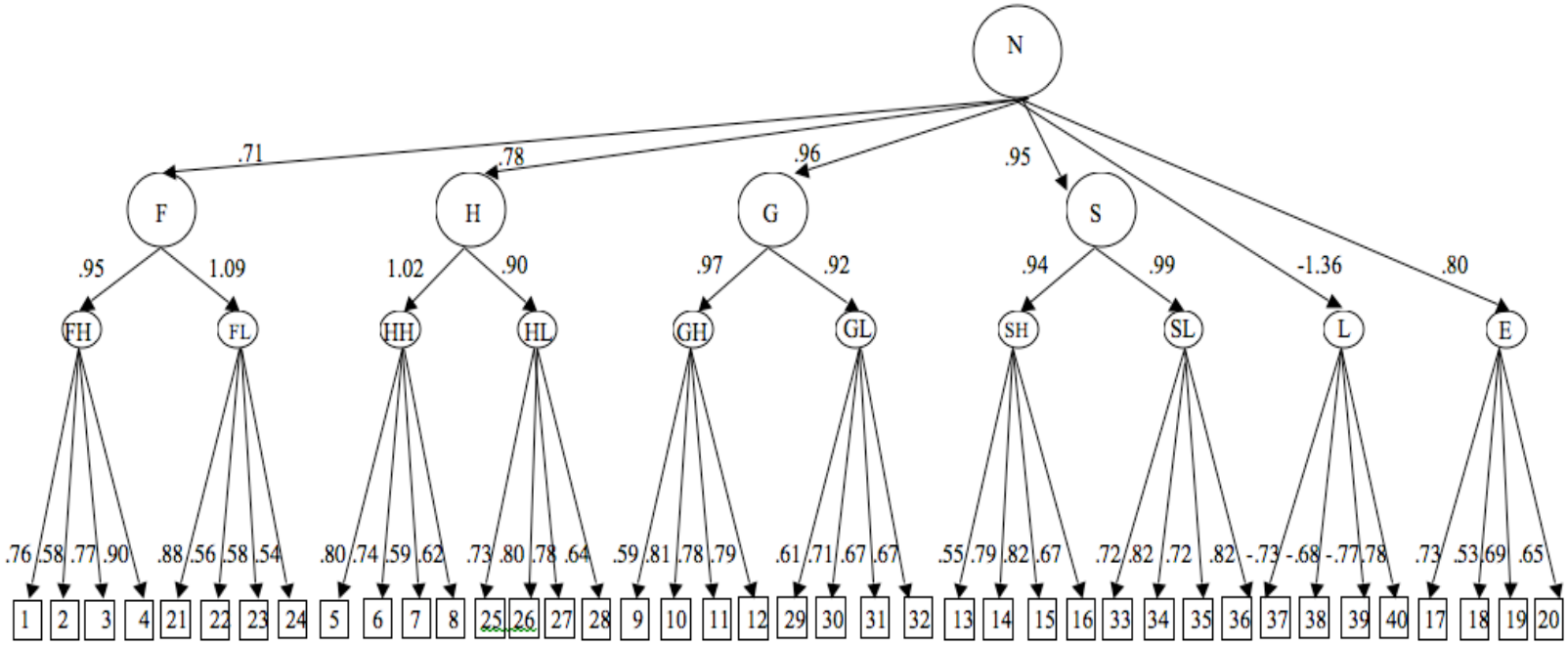


Figure 2a. Model 2 of the AVATS for CFA (Study 2). Correlation between N and P (Figure 2b) is -.84. N: Negative; F: Fear; H: Hostility; G: Guilt; S: Sadness; FH: Fear-high activation; FL: Fear-low activation; HH: Hostility-high activation; HL: Hostility-low activation; GH: Guilt-high activation; GL: Guilt- low activation; SH: Sadness-high activation; SL: Sadness- low activation; L: Lethargic; E: Embarrassment; 1: Frightened; 2: Panicky; 3: Fearful; 4: Scared; 21: Afraid; 22: Anxious; 23: Nervous; 24: Uneasy; 5: Angry; 6: Furious; 7: Hostile; 8: Scornful; 25: Annoyed; 26: Mad; 27: Irritated; 28: Grouchy; 9: Guilty; 10: Angry at self; 11: Disgusted with self; 12: Dissatisfied with self; 29: Blameworthy; 30: Regretful; 31: Sorry; 32: Sorry for things done; 13: Tormented; 14: Suffering; 15: Miserable; 16: Destroyed; 33: Blue; 34: Sad; 35: Discouraged; 36: Unhappy; 37: Drowsy; 38: Sluggish; 39: Tired; 40: Worn-out; 17: Humiliated; 18: Mortified; 19: Embarrassed; 20: Disgraced

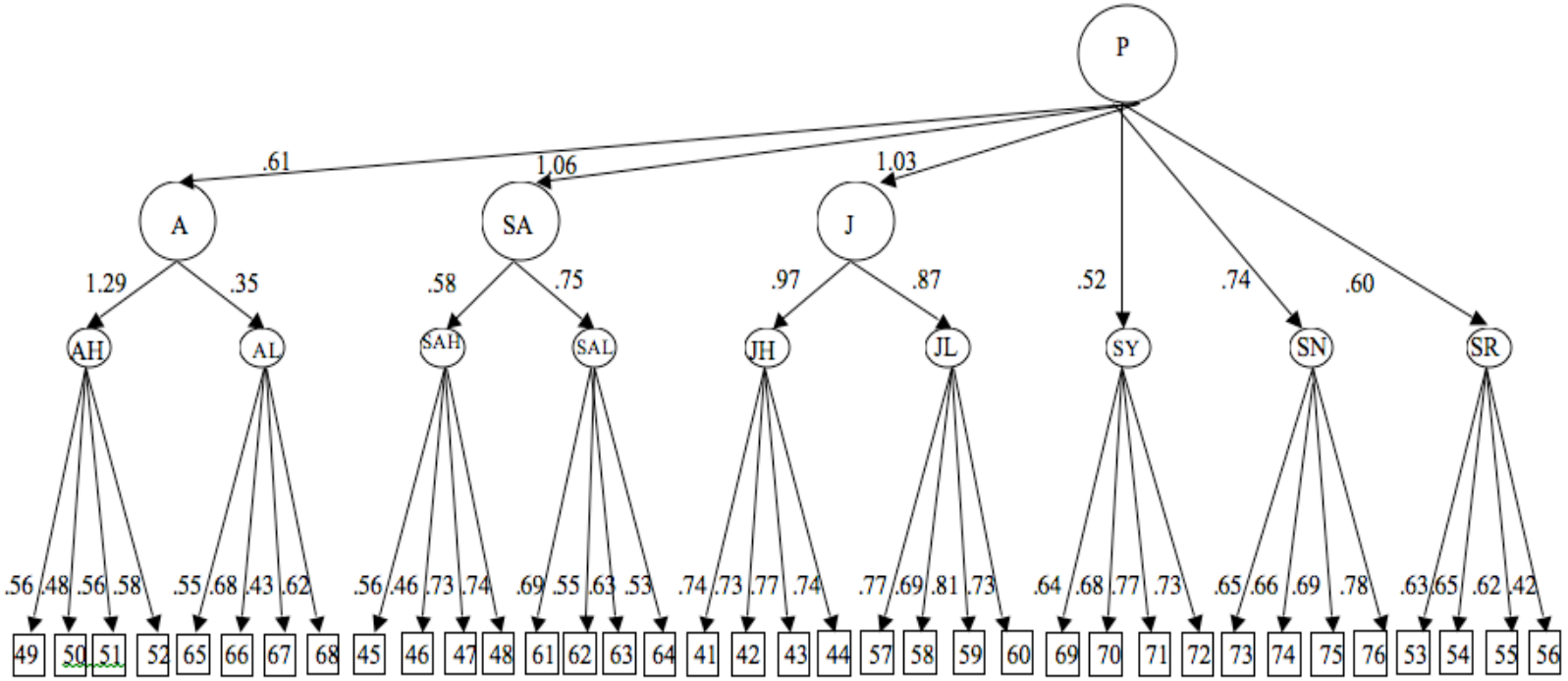


Figure 2b. Model 2 of the AVATS for CFA (Study 2). Correlation between N (Figure 2a) and P is -.84. P: Positive; A: Assertiveness; SA: Self-assurance; J: Joviality; AH: Attentiveness-high activation; AL: Attentiveness-low activation; SAH: Self-assurance-high activation; SAL: Self-assurance-low activation; JH: Joviality-high activation; JL: Joviality-low activation; SY: Shy; SN: Serenity; SR: Surprise; 49: Active; 50: Alert; 51: Attentive; 52: Inspired; 65: Introspective; 66: Engaged in thought; 67: Earnest; 68: Contemplative; 45: Bold; 46: Strong; 47: Daring; 48: Adventurous; 61: Friendly; 62: Good-natured; 63: Kindly; 64: Warm; 41: Energetic; 42: Lively; 43: Cheerful; 44: Enthusiastic; 57: Glad; 58: Pleased; 59: Happy; 60: Satisfied; 69: Bashful; 70: Quiet; 71: Shy; 72: Timid; 73: Calm; 74: Peaceful; 75: Refreshed; 76: Relaxed; 53: Amazed; 54: Astonished; 55: Surprised; 56: Shocked

APPENDICES

Appendix A: Hypothesized Categories for Emotions Scale (Study 1)

Valence	Valence and Activation		Emotion Adjectives (will be determined after data analysis)
Negative	Negative High	Fear High	
		Hostility High	
		Guilt High	
		Sadness High	
	Negative Low	Fear Low	
		Hostility Low	
		Guilt Low	
		Sadness Low	

Positive	Positive High	Joviality High	
		Self-assurance High	
		Attentiveness High	
	Positive Low	Joviality Low	
		Self-assurance Low	
		Attentiveness Low	

Appendix B: Demographic Information for Study 1 and Study 2

		Study 1		Study 2	
		Mean or number	SD or %	Mean or number	SD or %
Sex	Male	134	20.4	126	24.7
	Female	479	72.9	384	75.3
Race	Caucasian	496	75.5	409	80
	African-American	64	9.7	46	9
	Hispanic/Latino	21	3.2	14	2.7
	Asian	17	2.6	21	4.1
	Other	16	2.4	19	3.7
Age		21.1	5.05	21.02	4.96
Sample Size		616		510	

Appendix C: Demographics

Personal Information

1. Sex:

Male	Female	Other

2. Race

Caucasian	African-American	Hispanic/Latino	Asian	Other (Specify):

3. Age:

4. Marital Status:

Never married	Engaged	Cohabitating	Married	Divorced	Separated	Widowed	In serious relationship	Single

   a. If you have been married, how many times have you been married? _____

5. Number of children? _____

6. Please indicate your highest education level attained:

Grade:	7	8	9	10	11	12	High school diploma	GED
College:		13	14	15	16	Bachelor's degree	Associates degree	
Post Graduate:	17	18	19	20	Masters degree		Ph. D.	other advanced degree

Please circle here if you are still a student.

What year are you in school? _____
What are you studying? _____
What is your current GPA? _____
What is your cumulative GPA? _____

7. What is your current employment status?

Employed full-time	self-employed	semi-retired	employed part-time	unemployed	fully retired	student	disabled	work in the home

8. Mother's education:

no High School diploma or GED	High School graduate or GED	some College	College graduate	Post-College education

9. Father's education:

no High School diploma or GED	High School graduate or GED	some College	College graduate	Post-College education

10. Estimated household income:

under $10,000 a year	$10,000-24,000 a year	$25,000-39,000 a year	$40,000-59,000 a year	60,000-79,000 a year	80,000-99,000 a year	over 100,000 a year

Appendix D: Affective Trait Measures

Table D1

Mood Adjective Checklist

This scale consists of a number of words and phrases describing different feelings and emotions. Please read each item and then mark the appropriate answer next to that word. Indicate to what extent you feel this way generally. Use the following scale to record your answers:

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely

MACL-Nowlis					
Defiant	1	2	3	4	5
Rebellious	1	2	3	4	5
Angry	1	2	3	4	5
Grouchy	1	2	3	4	5
Annoyed	1	2	3	4	5
Fed-up	1	2	3	4	5
Clutched-Up	1	2	3	4	5
Fearful	1	2	3	4	5
Jittery	1	2	3	4	5
Carefree	1	2	3	4	5
Playful	1	2	3	4	5
Witty	1	2	3	4	5
Lively	1	2	3	4	5
Talkative	1	2	3	4	5
Elated	1	2	3	4	5
Overjoyed	1	2	3	4	5
Pleased	1	2	3	4	5
Refreshed	1	2	3	4	5
Attentive	1	2	3	4	5
Earnest	1	2	3	4	5
Serious	1	2	3	4	5
Contemplative	1	2	3	4	5
Concentrating	1	2	3	4	5
Engaged in thought	1	2	3	4	5
Intent	1	2	3	4	5
Introspective	1	2	3	4	5
Drowsy	1	2	3	4	5

Dull	1	2	3	4	5
Sluggish	1	2	3	4	5
Tired	1	2	3	4	5
Affectionate	1	2	3	4	5
Forgiving	1	2	3	4	5
Kindly	1	2	3	4	5
Warmhearted	1	2	3	4	5
Regretful	1	2	3	4	5
Sad	1	2	3	4	5
Sorry	1	2	3	4	5
Dubious	1	2	3	4	5
Skeptical	1	2	3	4	5
Suspicious	1	2	3	4	5
Egotistic	1	2	3	4	5
Self-Centered	1	2	3	4	5
Aloof	1	2	3	4	5
Boastful	1	2	3	4	5
Active	1	2	3	4	5
Energetic	1	2	3	4	5
Vigorous	1	2	3	4	5
Leisurely	1	2	3	4	5
Nonchalant	1	2	3	4	5

Table D2

Multiple Affect Adjective Checklist-R

This scale consists of a number of words and phrases describing different feelings and emotions. Please read each item and then mark the appropriate answer next to that word. Indicate to what extent you feel this way generally. Use the following scale to record your answers:

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely

MAACL					
Afraid	1	2	3	4	5
Fearful	1	2	3	4	5
Frightened	1	2	3	4	5
Impatient	1	2	3	4	5
Nervous	1	2	3	4	5
Panicky	1	2	3	4	5
Shaky	1	2	3	4	5
Tense	1	2	3	4	5
Timid	1	2	3	4	5
Worrying	1	2	3	4	5
Alone	1	2	3	4	5
Destroyed	1	2	3	4	5
Discouraged	1	2	3	4	5
Forlorn	1	2	3	4	5
Lonely	1	2	3	4	5
Lost	1	2	3	4	5
Miserable	1	2	3	4	5
Rejected	1	2	3	4	5
Sad	1	2	3	4	5
Suffering	1	2	3	4	5
Sunk	1	2	3	4	5
Tormented	1	2	3	4	5
Anger	1	2	3	4	5
Annoyed	1	2	3	4	5
Complaining	1	2	3	4	5
Critical	1	2	3	4	5
Cross	1	2	3	4	5
Cruel	1	2	3	4	5
Disagreeable	1	2	3	4	5

Disgusted	1	2	3	4	5
Enraged	1	2	3	4	5
Furious	1	2	3	4	5
Hostile	1	2	3	4	5
Incensed	1	2	3	4	5
Irritated	1	2	3	4	5
Mad	1	2	3	4	5
Mean	1	2	3	4	5
Affectionate	1	2	3	4	5
Free	1	2	3	4	5
Friendly	1	2	3	4	5
Glad	1	2	3	4	5
Good	1	2	3	4	5
Good-natured	1	2	3	4	5
Happy	1	2	3	4	5
Interested	1	2	3	4	5
Joyful	1	2	3	4	5
Loving	1	2	3	4	5
Peaceful	1	2	3	4	5
Pleased	1	2	3	4	5
Pleasant	1	2	3	4	5
Polite	1	2	3	4	5
Satisfied	1	2	3	4	5
Secure	1	2	3	4	5
Steady	1	2	3	4	5
Tender	1	2	3	4	5
Understanding	1	2	3	4	5
Warm	1	2	3	4	5
Whole	1	2	3	4	5
Active	1	2	3	4	5
Adventurous	1	2	3	4	5
Aggressive	1	2	3	4	5
Daring	1	2	3	4	5
Energetic	1	2	3	4	5
Enthusiastic	1	2	3	4	5
Merry	1	2	3	4	5
Wild	1	2	3	4	5
Bored	1	2	3	4	5
Mild	1	2	3	4	5
Quiet	1	2	3	4	5
Tame	1	2	3	4	5

Table D3

Profile of Mood States

This scale consists of a number of words and phrases describing different feelings and emotions. Please read each item and then mark the appropriate answer next to that word. Indicate to what extent you feel this way generally. Use the following scale to record your answers:

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely

POMS					
Friendly	1	2	3	4	5
Tense	1	2	3	4	5
Angry	1	2	3	4	5
Worn out	1	2	3	4	5
Unhappy	1	2	3	4	5
Clear-headed	1	2	3	4	5
Lively	1	2	3	4	5
Confused	1	2	3	4	5
Sorry for things done	1	2	3	4	5
Shaky	1	2	3	4	5
Listless	1	2	3	4	5
Peeved	1	2	3	4	5
Considerate	1	2	3	4	5
Sad	1	2	3	4	5
Active	1	2	3	4	5
On edge	1	2	3	4	5
Grouchy	1	2	3	4	5
Blue	1	2	3	4	5
Energetic	1	2	3	4	5
Panicky	1	2	3	4	5
Hopeless	1	2	3	4	5
Relaxed	1	2	3	4	5
Unworthy	1	2	3	4	5
Spiteful	1	2	3	4	5
Sympathetic	1	2	3	4	5
Uneasy	1	2	3	4	5
Restless	1	2	3	4	5
Unable to concentrate	1	2	3	4	5
Fatigued	1	2	3	4	5

Helpful	1	2	3	4	5
Annoyed	1	2	3	4	5
Discouraged	1	2	3	4	5
Resentful	1	2	3	4	5
Nervous	1	2	3	4	5
Lonely	1	2	3	4	5
Miserable	1	2	3	4	5
Muddled	1	2	3	4	5
Cheerful	1	2	3	4	5
Bitter	1	2	3	4	5
Exhausted	1	2	3	4	5
Anxious	1	2	3	4	5
Ready to fight	1	2	3	4	5
Good-natured	1	2	3	4	5
Gloomy	1	2	3	4	5
Desperate	1	2	3	4	5
Sluggish	1	2	3	4	5
Rebellious	1	2	3	4	5
Helpless	1	2	3	4	5
Weary	1	2	3	4	5
Bewildered	1	2	3	4	5
Alert	1	2	3	4	5
Deceived	1	2	3	4	5
Furious	1	2	3	4	5
Efficacious	1	2	3	4	5
Trusting	1	2	3	4	5
Full of pep	1	2	3	4	5
Bad-tempered	1	2	3	4	5
Worthless	1	2	3	4	5
Forgetful	1	2	3	4	5
Carefree	1	2	3	4	5
Terrified	1	2	3	4	5
Guilty	1	2	3	4	5
Vigorous	1	2	3	4	5
Uncertain about things	1	2	3	4	5
Bushed	1	2	3	4	5

Table D4

Differential Emotions Scale

This scale consists of a number of words and phrases describing different feelings and emotions. Please read each item and then mark the appropriate answer next to that word. Indicate to what extent you feel this way generally. Use the following scale to record your answers:

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely

DES					
Mad	1	2	3	4	5
Angry	1	2	3	4	5
Amazed	1	2	3	4	5
Astonished	1	2	3	4	5
Surprised	1	2	3	4	5
Attentive	1	2	3	4	5
Concentrating	1	2	3	4	5
Alert	1	2	3	4	5
Disdain	1	2	3	4	5
Revulsion	1	2	3	4	5
Scorn	1	2	3	4	5
Contempt	1	2	3	4	5
Scared	1	2	3	4	5
Afraid	1	2	3	4	5
Fearful	1	2	3	4	5
Guilt	1	2	3	4	5
Blameworthy	1	2	3	4	5
Repentant	1	2	3	4	5
Bashful	1	2	3	4	5
Shy	1	2	3	4	5
Happy	1	2	3	4	5
Downhearted	1	2	3	4	5
Joy	1	2	3	4	5
Sad	1	2	3	4	5
Delight	1	2	3	4	5

Table D5

PANAS-X

This scale consists of a number of words and phrases describing different feelings and emotions. Please read each item and then mark the appropriate answer next to that word. Indicate to what extent you feel this way generally. Use the following scale to record your answers:

1	2	3	4	5
very slightly or not at all	a little	moderately	quite a bit	extremely

PANAS-X					
Cheerful	1	2	3	4	5
Disgusted	1	2	3	4	5
Attentive	1	2	3	4	5
Bashful	1	2	3	4	5
Sluggish	1	2	3	4	5
Daring	1	2	3	4	5
Surprised	1	2	3	4	5
Strong	1	2	3	4	5
Scornful	1	2	3	4	5
Relaxed	1	2	3	4	5
Irritable	1	2	3	4	5
Delighted	1	2	3	4	5
Inspired	1	2	3	4	5
Fearless	1	2	3	4	5
Disgusted with self	1	2	3	4	5
Sad	1	2	3	4	5
Calm	1	2	3	4	5
Afraid	1	2	3	4	5
Tired	1	2	3	4	5
Amazed	1	2	3	4	5
Shaky	1	2	3	4	5
Happy	1	2	3	4	5
Timid	1	2	3	4	5
Alone	1	2	3	4	5
Alert	1	2	3	4	5
Upset	1	2	3	4	5
Angry	1	2	3	4	5
Bold	1	2	3	4	5
Blue	1	2	3	4	5

Shy	1	2	3	4	5
Active	1	2	3	4	5
Guilty	1	2	3	4	5
Joyful	1	2	3	4	5
Nervous	1	2	3	4	5
Lonely	1	2	3	4	5
Sleepy	1	2	3	4	5
Excited	1	2	3	4	5
Hostile	1	2	3	4	5
Proud	1	2	3	4	5
Jittery	1	2	3	4	5
Lively	1	2	3	4	5
Ashamed	1	2	3	4	5
at ease	1	2	3	4	5
Scared	1	2	3	4	5
Drowsy	1	2	3	4	5
angry at self	1	2	3	4	5
Enthusiastic	1	2	3	4	5
Downhearted	1	2	3	4	5
Sheepish	1	2	3	4	5
Distressed	1	2	3	4	5
Blameworthy	1	2	3	4	5
Determined	1	2	3	4	5
Frightened	1	2	3	4	5
Astonished	1	2	3	4	5
Interested	1	2	3	4	5
Loathing	1	2	3	4	5
Confident	1	2	3	4	5
Energetic	1	2	3	4	5
Concentrating	1	2	3	4	5
Dissatisfied with self	1	2	3	4	5

Table D6

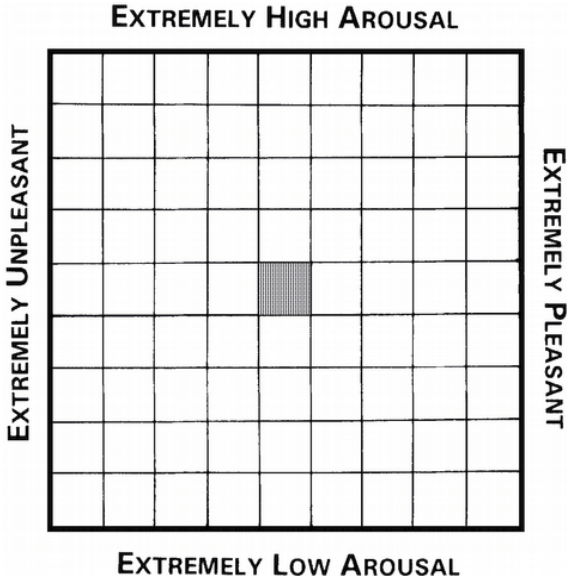
Affect Grid

Use the affect grid to describe your feelings. It is in the form of a square kind of map for feelings. The center of the square (the shaded area) represents a neutral, average, everyday feeling. It is neither positive nor negative. The right side of the grid represents pleasant feelings. The farther to the right, the more pleasant. The left half represents unpleasant feelings; the farther to the left, the more unpleasant.

The vertical dimension of the map represents degree of arousal. Arousal has to do with how wide awake, alert, or activated a person feels – independent of whether the feeling is positive or negative. The top half is for feelings that are above average in arousal; the lower half is for feelings that are below average in arousal. The very bottom represents sleep and the higher you go, the more awake a person feels.

Generally, up in the top and middle can be described as "frantic excitement." Up to the top and to the right is ecstasy, excitement, joy. Opposite these, down and to the left, are feelings of depression, melancholy, sadness, and gloom. Up and to the left are feelings of stress and tension. Opposite these, down and the right are feelings of calm, relaxation, and serenity.

Please mark the square on the grid that best represents your general emotional state – how aroused you generally feel and how positive/negative you feel.



Appendix E: Normality Data of Surveys in Study 1

Scale	Original adjectives		Mean value of adjectives	
	Skewness	Kurtosis	Skewness	Kurtosis
MACL	.03	2.28	.02	.10
MAACL	.38	3.64	.32	.39
POMS	1.09	2.89	1.09	3.09
DES	.75	2.04	.76	2.23
PANAS-X	.72	3.89	.49	2.90
Affect Grid Valence	-.81	-.11	n.a.	n.a.
Affect Grid Activation	-.58	-.19	n.a.	n.a.

Appendix F: Final Categories of AVATS (Study 1)

Negative	Negative High	Fear High	Frightened
			Panicky
			Fearful
			Scared
		Hostility High	Angry
			Furious
			Hostile
			Scornful
		Guilt High	Guilty
			Angry at self
			Disgusted with self
			Dissatisfied with self
		Sadness High	Tormented
			Suffering
			Miserable
			Destroyed
		Embarrassment	Humiliated
			Mortified
			Embarrassed
			Disgraced
	Negative Low	Fear Low	Afraid
			Anxious
			Nervous
			Uneasy
		Hostility Low	Annoyed
			Mad
			Irritated
			Grouchy
		Guilt Low	Blameworthy
			Regretful
			Sorry
			Sorry for things done
		Sadness Low	Blue
			Sad
			Discouraged
			Unhappy
		Lethargic	Drowsy
			Sluggish
			Tired
			Worn-out

	Positive High	Joviality High	Energetic
Positive			Lively
			Cheerful
			Enthusiastic
		Self-assurance High	Bold
			Strong
			Daring
			Adventurous
		Attentiveness High	Active
			Alert
			Attentive
			Inspired
		Surprise	Amazed
			Astonished
			Surprised
			Shocked
	Positive Low	Joviality Low	Glad
			Pleased
			Happy
			Satisfied
		Self-assurance Low	Friendly
			Good natured
			Kindly
			Warm
		Attentiveness Low	Introspective
			Engaged in thought
			Earnest
			Contemplative
		Shy	Bashful
			Quiet
			Shy
			Timid
		Serenity	Calm
			Peaceful
			Refreshed
			Relaxed

Appendix G: Inter-scale correlations of the 19 scales from the AVATS (Study 2)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	**.48**	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	**.59**	**.58**	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	**.52**	**.61**	**.70**	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	**.51**	**.59**	**.65**	**.56**	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	*.77***	*.55***	*.65***	*.55***	*.53***	1	-	-	-	-	-	-	-	-	-	-	-	-	-
7	*.44***	*.72***	*.49***	*.49***	*.40***	.56***	1	-	-	-	-	-	-	-	-	-	-	-	-
8	*.58***	*.54***	*.74***	*.58***	*.31***	.57***	.47***	1	-	-	-	-	-	-	-	-	-	-	-
9	*.57***	*.60***	*.77***	*.76***	*.57***	.64***	.58***	.66***	1	-	-	-	-	-	-	-	-	-	-
10	*.35***	*.38***	*.42***	*.43***	*.21***	.43***	.52***	.32***	.45***	1	-	-	-	-	-	-	-	-	-
11	-.23***	-.24***	-.32***	-.38***	-.16***	-.27***	-.32***	-.20***	-.39***	-.37***	*1*	-	-	-	-	-	-	-	-
12	-.24***	-.08	-.21***	-.20***	-.11*	-.22***	-.14***	-.19***	-.28***	-.18***	*.54***	*1*	-	-	-	-	-	-	-
13	-.18***	-.20***	-.29***	-.24***	-.17***	-.23***	-.25***	-.24***	-.37***	-.33***	*.54***	*.48***	*1*	-	-	-	-	-	-
14	.26***	.20***	.15***	.10*	.34***	.23***	.10*	.20***	.08	-.05	*.34***	*.27***	*.25***	*1*	-	-	-	-	-
15	-.29***	-.32***	-.48***	-.49***	-.28***	-.34***	-.34***	-.36***	-.54***	-.35***	.70***	.37***	.50***	.28***	**1**	-	-	-	-
16	-.07	-.25***	-.18***	-.26***	-.12***	-.12***	-.26***	-.12***	-.25***	-.25***	.62***	.32***	.39***	.27***	**.56***	**1**	-	-	-
17	-.08	.09	.08	.05	.06	.11*	.01	.02	.09*	-.05	.19***	.16***	.30***	.12***	**.16***	**.18***	**1**	-	-
18	.30***	.22***	.33***	.30***	.37***	.34***	.24***	.28***	.32***	.18***	-.28***	-.34***	-.16***	.06	**-.16***	**-.06**	**.08**	**1**	-
19	-.32***	-.25***	-.39***	-.37***	-.15***	-.35***	-.32***	-.23***	-.39***	-.49***	.58***	.34***	.45***	.20***	**.58***	**.43***	**.17***	**-.05**	**1**

Note. 1: Fear high; 2: Hostility high; 3: Guilt high; 4: Sadness high; 5: Embarrassment; 6: Fear low; 7: Hostility low; 8: Guilt low; 9: Sadness low; 10: Lethargic; 11: Joviality high; 12: Self-assurance high; 13: Attentiveness high; 14: Surprise; 15: Joviality low; 16: Self-assurance low; 17: Attentiveness low; 18: Shy; 19: Serenity; Bold: High negative; Underline: Low negative; Italic-underline: High positive; Bold-underline: Low positive; Italic: High negative-Low negative; Dashed underline: High positive-Low positive; ** $p < .01$; * $p < .05$.

Appendix H: The AVATS

This scale consists of a number of words and phrases describing different feelings and emotions. Please read each item and the mark the appropriate answer next to that word. Indicate to what extent you feel this way generally. (1: very slightly or not at all; 2: a little; 3: moderately; 4: quite a bit; 5: extremely).

	1 Very slightly or not at all	2 A little	3 Moderately	4 Quite a bit	5 Extremely
Calm	1	2	3	4	5
Inspired	1	2	3	4	5
Friendly	1	2	3	4	5
Bold	1	2	3	4	5
Introspective	1	2	3	4	5
Alert	1	2	3	4	5
Tormented	1	2	3	4	5
Disgusted with self	1	2	3	4	5
Fearful	1	2	3	4	5
Kindly	1	2	3	4	5
Adventurous	1	2	3	4	5
Miserable	1	2	3	4	5
Sorry	1	2	3	4	5
Frightened	1	2	3	4	5
Daring	1	2	3	4	5
Shy	1	2	3	4	5
Blue	1	2	3	4	5
Tired	1	2	3	4	5
Amazed	1	2	3	4	5
Blameworthy	1	2	3	4	5
Strong	1	2	3	4	5
Guilty	1	2	3	4	5
Disgraced	1	2	3	4	5
Lively	1	2	3	4	5
Afraid	1	2	3	4	5
Scared	1	2	3	4	5
Anxious	1	2	3	4	5
Warm	1	2	3	4	5
Worn out	1	2	3	4	5
Relaxed	1	2	3	4	5
Refreshed	1	2	3	4	5
Attentive	1	2	3	4	5
Cheerful	1	2	3	4	5

Earnest	1	2	3	4	5
Mortified	1	2	3	4	5
Shocked	1	2	3	4	5
Dissatisfied with self	1	2	3	4	5
Pleased	1	2	3	4	5
Drowsy	1	2	3	4	5
Destroyed	1	2	3	4	5
Angry	1	2	3	4	5
Sad	1	2	3	4	5
Embarrassed	1	2	3	4	5
Scornful	1	2	3	4	5
Annoyed	1	2	3	4	5
Furious	1	2	3	4	5
Discouraged	1	2	3	4	5
Sorry for things done	1	2	3	4	5
Unhappy	1	2	3	4	5
Surprised	1	2	3	4	5
Happy	1	2	3	4	5
Humiliated	1	2	3	4	5
Good natured	1	2	3	4	5
Hostile	1	2	3	4	5
Suffering	1	2	3	4	5
Grouchy	1	2	3	4	5
Energetic	1	2	3	4	5
Panicky	1	2	3	4	5
Active	1	2	3	4	5
Astonished	1	2	3	4	5
Uneasy	1	2	3	4	5
Enthusiastic	1	2	3	4	5
Engaged in thought	1	2	3	4	5
Glad	1	2	3	4	5
Contemplative	1	2	3	4	5
Nervous	1	2	3	4	5
Mad	1	2	3	4	5
Bashful	1	2	3	4	5
Angry at self	1	2	3	4	5
Satisfied	1	2	3	4	5
Timid	1	2	3	4	5
Peaceful	1	2	3	4	5
Quiet	1	2	3	4	5
Regretful	1	2	3	4	5
Sluggish	1	2	3	4	5
Irritated	1	2	3	4	5

Appendix I: UPPS-P

Below are a number of statements that describe ways in which people act and think. For each statement, please indicate how much you agree or disagree with the statement. If you **Agree Strongly** circle **1**, if you **Agree Somewhat** circle **2**, if you **Disagree somewhat** circle **3**, and if you **Disagree Strongly** circle **4**. Be sure to indicate your agreement or disagreement for every statement below. Also, there are questions on the following pages.

		Agree Strongly	Agree Some	Disagree Strongly	Disagree Some
1.	I have a reserved and cautious attitude toward life.	1	2	3	4
2.	I have trouble controlling my impulses.	1	2	3	4
3.	I generally seek new and exciting experiences and sensations.	1	2	3	4
4.	I generally like to see things through to the end.	1	2	3	4
5.	When I am very happy, I can't seem to stop myself from doing things that can have bad consequences.	1	2	3	4
6.	My thinking is usually careful and purposeful.	1	2	3	4
7.	I have trouble resisting my cravings (for food, cigarettes, etc.).	1	2	3	4
8.	I'll try anything once.	1	2	3	4
9.	I tend to give up easily.	1	2	3	4
10.	When I am in great mood, I tend to get into situations that could cause me problems.	1	2	3	4
11.	I am not one of those people who blurt out things without thinking.	1	2	3	4
12.	I often get involved in things I later wish I could get out of.	1	2	3	4
13.	I like sports and games in which you have to choose your next move very quickly.	1	2	3	4

14.	Unfinished tasks really bother me.	1	2	3	4
15.	When I am very happy, I tend to do things that may cause problems in my life.	1	2	3	4
16.	I like to stop and think things over before I do them.	1	2	3	4
17.	When I feel bad, I will often do things I later regret in order to make myself feel better now.	1	2	3	4
18.	I would enjoy water skiing.	1	2	3	4
19.	Once I get going on something I hate to stop.	1	2	3	4
20.	I tend to lose control when I am in a great mood.	1	2	3	4
21.	I don't like to start a project until I know exactly how to proceed.	1	2	3	4
22.	Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse.	1	2	3	4
23.	I quite enjoy taking risks.	1	2	3	4
24.	I concentrate easily.	1	2	3	4
25.	When I am really ecstatic, I tend to get out of control.	1	2	3	4
26.	I would enjoy parachute jumping.	1	2	3	4
27.	I finish what I start.	1	2	3	4
28.	I tend to value and follow a rational, "sensible" approach to things.	1	2	3	4
29.	When I am upset I often act without thinking.	1	2	3	4
30.	Others would say I make bad choices when I am extremely happy about something.	1	2	3	4
31.	I welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional.	1	2	3	4

32.	I am able to pace myself so as to get things done on time.	1	2	3	4
33.	I usually make up my mind through careful reasoning.	1	2	3	4
34.	When I feel rejected, I will often say things that I later regret.	1	2	3	4
35.	Others are shocked or worried about the things I do when I am feeling very excited.	1	2	3	4
36.	I would like to learn to fly an airplane.	1	2	3	4
37.	I am a person who always gets the job done.	1	2	3	4
38.	I am a cautious person.	1	2	3	4
39.	It is hard for me to resist acting on my feelings.	1	2	3	4
40.	When I get really happy about something, I tend to do things that can have bad consequences.	1	2	3	4
41.	I sometimes like doing things that are a bit frightening.	1	2	3	4
42.	I almost always finish projects that I start.	1	2	3	4
43.	Before I get into a new situation I like to find out what to expect from it.	1	2	3	4
44.	I often make matters worse because I act without thinking when I am upset.	1	2	3	4
45.	When overjoyed, I feel like I can't stop myself from going overboard.	1	2	3	4
46.	I would enjoy the sensation of skiing very fast down a high mountain slope.	1	2	3	4
47.	Sometimes there are so many little things to be done that I just ignore them all.	1	2	3	4
48.	I usually think carefully before doing anything.	1	2	3	4
49.	When I am really excited, I tend not to think of the consequences of my actions.	1	2	3	4
50.	In the heat of an argument, I will often say things that I later regret.	1	2	3	4
51.	I would like to go scuba diving.	1	2	3	4
52.	I tend to act without thinking when I am really excited.	1	2	3	4
53.	I always keep my feelings under control.	1	2	3	4

54.	When I am really happy, I often find myself in situations that I normally wouldn't be comfortable with.	1	2	3	4
57.	When I am very happy, I feel like it is ok to give in to cravings or overindulge.	1	2	3	4
58.	Sometimes I do impulsive things that I later regret.	1	2	3	4
59.	I am surprised at the things I do while in a great mood.	1	2	3	4

Appendix J: The Drinking Styles Questionnaire

Please answer the following as honestly as possible. "Drinking alcohol" refers to drinking any beverage with alcohol in it such as beer, wine, whiskey, liquor, rum, scotch, vodka, gin, or alcoholic mixed drinks. Also, "a drink" is more than just a sip or a taste. (A sip or a taste is just a small amount or part of someone else's drink or only a swallow or two. A drink would be more than that.) If you have any questions, please raise your hand. Remember, your responses will be kept confidential. No one will ever know how you answered these questions.

1) Have you ever had an alcoholic drink (more than a sip or a taste)?
   a) yes
   b) no

2) If you answered "yes" to question one, at what age did you have your first drink?
   __14___ years

3) If you answered "no" to question one, at what age do you think you will take your first drink? _____ years

4) Which of the following best describes how often you drink alcohol? (Choose only one.)
   a) I have never had a drink of alcohol.
   b) I have only had 1, 2, 3, or 4 drinks of alcohol in my life.
   c) I only drink alcohol 3 or 4 times a year.
   d) I drink alcohol about once a month.
   e) I drink alcohol once or twice a week.
   f) I drink alcohol almost daily.

5) Which of the following best describes how much alcohol you usually drink at one time? (Choose only one.)
   a) I don't drink alcohol at all.
   b) I usually drink only small amounts of alcohol (the equivalent of 1 beer or 1 drink or less).
   c) I usually drink moderate amounts of alcohol (between 2-3 beers or drinks).
   d) I usually drink quite a bit of alcohol (between 4-8 beers or drinks).
   e) I usually drink a lot of alcohol (more than 9 beers or drinks).

6) Which of the following is true for you? (Choose only one.)
   a) I have never been drunk.
   b) I have been drunk once or twice in my life.
   c) I get drunk 2, 3, or 4 times a year.
   d) I get drunk about once a month.
   e) I get drunk about once a week.
   f) I get drunk more than once a week.

7) Which of the following is true for you? (Choose only one.)
   a) I don't drink alcohol.
   b) When I drink alcohol, I always stop before I get drunk.
   c) When I drink alcohol, I almost always stop before I get drunk.
   d) When I drink alcohol, I stop before I get drunk more than one-half of the time.
   e) When I drink alcohol, I get drunk more than one-half of the time.
   f) When I drink alcohol, I almost always get drunk.

8) Who do you usually drink with? (Choose only one.)
   a) I don't drink.
   b) I'm usually with my family when I drink alcohol.
   c) I'm usually with a group of friends when I drink alcohol.
   d) I'm usually alone when I drink alcohol.
   e) I'm usually alone with my boyfriend/girlfriend when I drink alcohol.

9) Where do you usually drink alcohol? (Choose only one.)
   a) I don't drink alcohol.
   b) I usually drink alcohol at home.
   c) I usually drink alcohol at a friend's home.
   d) I usually drink alcohol just before, at, or after a sporting event.
   e) I usually drink alcohol just before, at, or after a party.
   f) I usually drink alcohol at school.
   g) I usually drink alcohol in a car.
   h) I usually drink at a religious service or activity.

10) When do you usually drink alcohol?
   a) I don't drink alcohol.
   b) I usually drink alcohol in the morning, before school.
   c) I usually drink alcohol during school hours.
   d) I usually drink alcohol during the day on Saturday or Sunday.
   e) I usually drink alcohol during the week-nights (Sunday through Thursday).
   f) I usually drink alcohol during the week-end nights (Friday or Saturday).

11) Circle True or False for each of the following statements.
   a) T (1) F (2) I have gotten a hangover from drinking alcohol.
   b) T (1) F (2) I have gotten nauseous and/or vomited from drinking alcohol.
   c) T (1) F (2) I have had a blackout while drinking alcohol.
   d) T (1) F (2) There have been times when I could not recall what I did while drinking alcohol.
   e) T (1) F (2) I have gotten in trouble with my parents for drinking alcohol.
   f) T (1) F (2) I have gotten in trouble with school for drinking alcohol.
   g) T (1) F (2) I have gotten in trouble with my friends for drinking alcohol.
   h) T (1) F (2) I have gotten into fights while drinking alcohol.
   i) T (1) F (2) I have been stopped by police for drunk driving or for being drunk and disorderly.
   j) T (1) F (2) I have committed other illegal acts (larceny, robbery, breaking and (a) entering, vandalism, destruction of other's property) (b) when drinking alcohol.

12) In general, from what source do you learn the most about the effects of alcohol? (Choose only one.)
   a) my parents.
   b) my peers (friends)
   c) my church
   d) the mass media (T.V., radio, advertisements, books, magazines, etc.)
   e) my school
   f) my own experience with alcohol
   g) other (specify) _____

13) Approximately how much do you spend on alcohol in one week. (Choose only one.)
   a) Nothing, I don't drink alcohol.
   b) $1.00 to $5.00
   c) $5.01 to $10.00
   d) $10.01 to $15.00
   e) $15.01 to $20.00
   f) $20.01 to $25.00
   g) I drink, but I do not pay for it.

14) Which type of alcoholic drink do you prefer? (Choose only one.)
   a) I don't drink.
   b) Beer
   c) Wine
   d) Liquor (including mixed drinks)

15) What is the most alcohol you have consumed at one time? (Choose only one.)
   a) I don't drink.
   b) 1-2 drinks or beers
   c) 3-5 drinks or beers

d) 1 pint of liquor or 12 beers
e) Between a pint and a fifth of liquor or 12-23 beers.
f) Over a fifth of liquor or a case or more of beer.

16) Have you ever been continually drunk for 2 or more days? (Choose only one.)
a) No
b) Yes, once or twice
c) Yes, three or more times

Appendix K: Correlation Between Variables Used in the Hierarchical Regression Analyses (Study 2)

	NUR	Problematic drinking	Negative-High activation	Negative-Low activation
NUR	1	-	-	-
Problematic drinking	.22**	1	-	-
Negative-High activation	.46**	.06	1	-
Negative-Low activation	.50**	.12**	.88**	1

Note. * $p < .05$; ** $p < .01$